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AMAZING STORIES

Scientific Fiction

Vol. 7 November, 1932 No. 8

In Our Next Issue

THE WORLD OF THE LIVING DEAD, by Ed. Earl Repp. Our readers are now familiar with the characters in this most striking story. It is concluded in this issue and up to the very last pages it is impossible for the reader to surmise how it is going to end. It has the sustained interest that characterizes this author.

NO MORE TOMORROWS, by David H. Keller. M.D. In this story by Dr. Keller there is a strong touch of the grotesque, reminding us of some of the strange stories of Edgar Allan Poe. Dr. Keller's national standing as an authority on psychology and the curious operations of the human brain, with his skill as a writer, makes this a valuable contribution to our pages.

ROADWAYS OF MARS, by Harl Vincent. There is little to be said about a story by Harl Vincent. He has won for himself a very high place in the esteem of our readers, and the Editors of this magazine always welcome the work of his pen. It gives an excellent interplanetary story for this issue and will be welcomed by our readers.

THE CALL TO MIGRATE, by H. M. Crimp. There is a special interest in this story in which entermology plays an important part, as it is by an Australian author. It is very interesting to see how a writer in the Antipodes will treat his subject. Entermology is developed in so characteristic a way in the great continent of the east.

And other unusual scientific fiction.

In Our November Issue

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Our Cover

The cover page gives a scene from "Captain Brink of the Space Marines," showing an attack on two of the characters by the giant amoeba.

Illustrations and Cover by Morey

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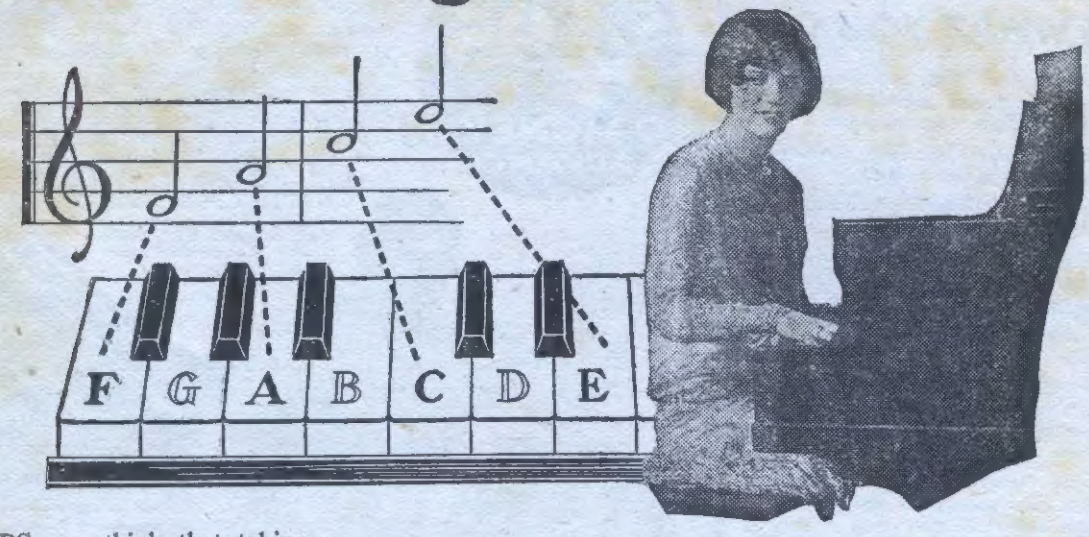

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VOLUME 7

AMAZING STORIES

THE MAGAZINE OF SCIENCE FICTION

NOVEMBER, 1932 No. 8

T. O'CONOR SLOANE, Ph.D., *Editor* MIRIAM BOURNE, *Managing Editor*

Editorial and General Offices: 222 West 39th Street, New York, N. Y.

Extravagant Fiction Today . . . . . Cold Fact Tomorrow

The Rotating Earth

By T. O'Conor Sloane, Ph.D.

WHEN a body is in rotation about its axis it develops very striking forces. Of all the inventions of mankind, it has often been remarked that the wheel is perhaps the greatest. When a boy spins his top it stands firmly or with a graceful swaying motion on its sharply pointed end, or it may be that it has a somewhat rounded end on which it spins, but always with the large end upward, in apparent defiance to the force of gravity. Now it so happens that in this world of ours motions in curves play an enormously important part, of which the wheel just alluded to is an example. Motion in an absolutely straight line seems foreign to the cosmic system, and it is in this cosmic system that we have a number of bodies symmetrical in shape each whirling around its axis like a top or a gigantic gyroscope.

The points on the earth's surface which represent the ends of its axis, as we know, are termed its poles. The axis of the earth preserves an almost unchanged direction, but in the course of centuries the ends move through a curve, and this particular motion is called the precession of the equinoxes. As the world turns around its axis we can think of it as a gigantic gyroscope and like the gyroscope used to steer ships at sea; except for the precession of the equinoxes which is very slight and slow, it preserves an unchanging direction. At present it points approximately at its north end to the pole star. A good many years from now it will point at some other star.

The turning of the earth about its axis generates centrifugal force. This affects the earth materially. A given mass of material is heavier at the poles than it is at the Equator, centrifugal force counteracting a certain amount of gravitation. If the earth ceased rotating there would be a tremendous redistribution of the waters of the globe. A river in the Northern Hemisphere flowing to the south as it approaches the Equator gets further and further from the center of the earth—in plain words, the Mississippi River, as an instance, runs uphill, the Nile, which is in the Northern Hemisphere and flows away from the Equator flows downhill enough to generate a veritable cataract, except for the fact that it is held back by centrifugal force. It is rather interesting to go over the map and pick out the different rivers and settle whether they flow up or down hill. The basis of it is the fact that the earth contour taken from pole to pole is slightly elliptical so that the Equator is about six and one-half miles further from the axis than the contour at the poles. In the Antarctic the mountainous ground affects this surface.

And now suppose the earth was to stop turning on its axis. Imagine the enormous change in the distribution of water which would occur. At the Equator the water would sink down about six and one-half miles if it had depth enough to go that far. It might uncover the territory of the lost Atlantis. Africa and South America might almost or quite touch each other. The waters of the Gulf of Mexico would fall so that the Mississippi River might have no outlet. A river running north or south, would become a raging torrent until equilibrium of some sort was established. The entire drainage system of the land areas of the earth would be radically changed. We might expect to find the Mississippi flowing to the north, perhaps passing by Chicago into the Great Lakes. One could almost give vent to the wildest imaginations of what would happen, if the earth ceased turning on its axis.

Just as we have spoken about the depths of the ocean in the vicinity of the Equator being laid bare, the water of the ocean would run north and south burying vast regions of the earth beneath a veritable flood. The tremendous rise and fall of tides in the Bay of Fundi would be modified to a great extent and as the great rush of the ocean water from the Equator would take place the current of the St. Lawrence might be reversed in direction, Niagara might be drowned out and the land surrounding the Great Lakes might be submerged for many miles.

If we try to imagine the rush of water from the Equator to the northward and southward, the imagination can hardly picture the extent of the varying of the ocean's depth and the flooding of northern and southern lands adequately.

In some of the scientific institutions of the earth, a pendulum consisting of a sphere of metal suspended by a wire perhaps a hundred or more feet in length is caused to swing. Swinging in the same plane it will be evident that if the pendulum is away from the Equator that it will indicate the rotation of the earth by constantly changing the direction of its swing. This is an excellent popular demonstration of the fact that the earth is turning on its axis, but if the earth stood still as far as rotation on its axis is concerned the pendulum would never change the direction of its swing, except as far as the annual change is concerned. It is often provided with a little point at its lowest side and fine sand is sprinkled under it to some little depth and the disturbance of the sand by the pendulum shows the rotation of the earth.

At the Antarctic regions the great continent carries a mountain about two miles in height. If the ocean fell six and one-half miles at the Equator the Admiral Byrds of the future might sail over the South Pole in their ships. The imagination can picture all sorts of changes and it is very likely that the error would be the direction of not picturing them anything like as great as they would really be.

The Doom of Lun-Dhag

By William Lemkin, Ph.D.

Author of "Blue Waters," "Cold Light," etc.

FUNDAMENTALLY, peoples of any creed or race react in much the same manner to similar stimuli. A scientist-fanatic of this country might plan to gain a nefarious end in one way, and an Oriental scientist-fanatic might make entirely different plans, but in the final analysis it's the end that counts. What the "hero" of this unusual science fiction story does, though it seems beyond ordinary credence, is plausible and its possibilities seem convincing.

Illustrated by MOREY

THE first missile that fell was reported by the *S. S. Vincent.* She radioed her position at the time as approximately thirty miles northeast of Sandy Hook.

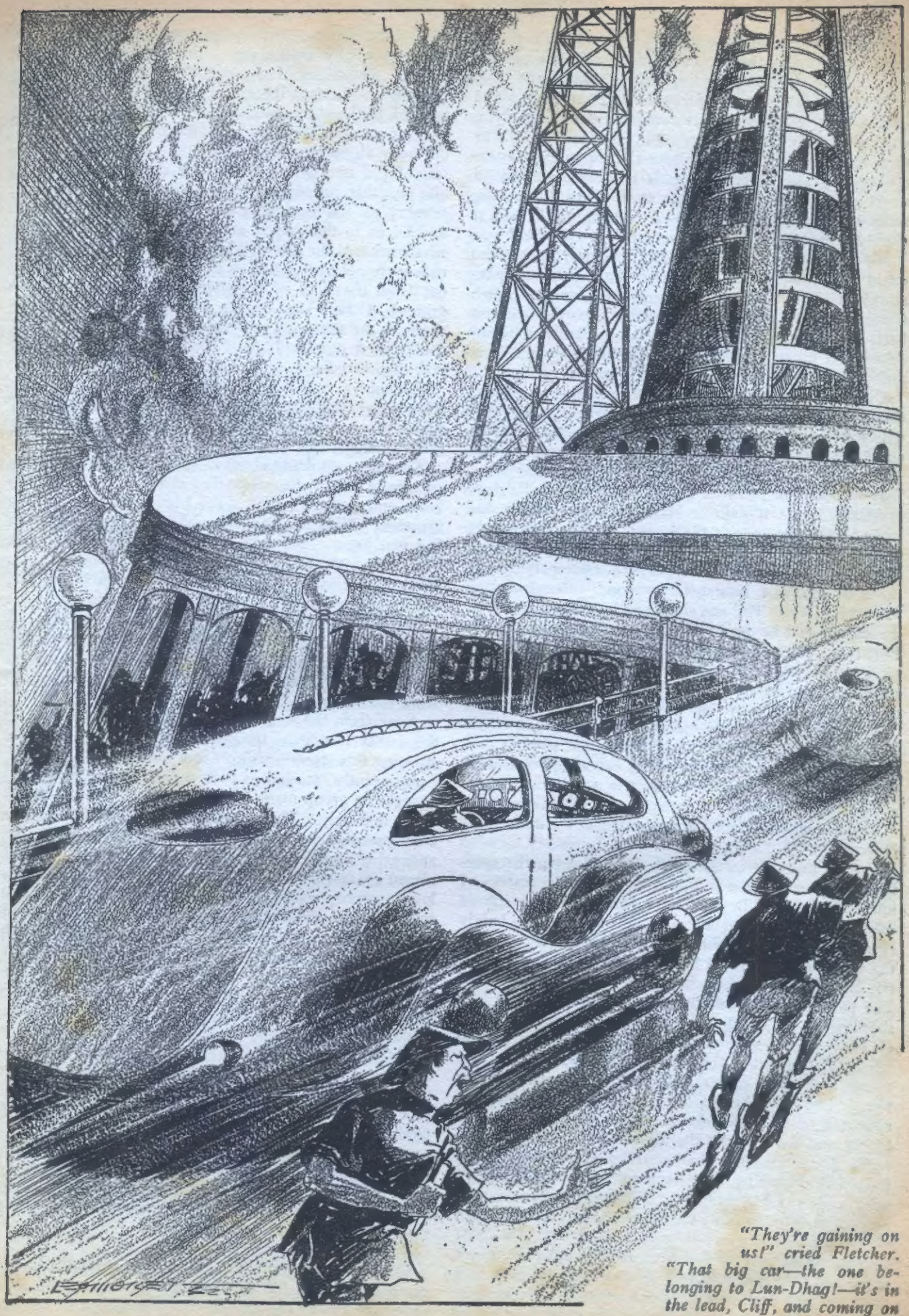
No, it wasn't a meteor—the captain was positive about it. He happened to be on the bridge at the time, and had a good chance of observing the thing drop. It really wasn't a drop either—more like a gentle descent, as though with the aid of an invisible parachute. As well as he could make it out, the object was cylindrical in shape, smooth and metallic looking, with a queer brassy lustre. It wasn't very large—oh, perhaps eight or ten feet in length. When it struck the water about fifty yards from his vessel, the missile remained floating, about three-quartere submerged and tilted slightly off the vertical, for the period of a few moments, and then sank gently out of sight.

Yes, he had turned his ship around, and circled the spot where the strange object had disappeared, waiting for any further developments, but nothing else had happened. At first he suspected that the thing had dropped from some aircraft, but none was either visible or audible aloft. A most mysterious occurrence, and one that ought to be investigated. Of that he was convinced.

Before this bit of news could be digested properly, the second missile arrived.

This one, coming apparently out of nowhere in just such an odd manner as described by the captain of the *Vincent,* dropped about a half mile offshore near the western end of Coney Island. It was early afternoon, the day was mild, and consequently there was a rather considerable crowd of strollers on the boardwalk. Many of them, therefore, had an excellent opportunity of witnessing the descent of missile No. 2. All who had kept their wits about them at the moment, and were later able to compare notes intelligently regarding what they had seen, were agreed in the main. The object was of the same general size and shape as the one reported by th *Vincent's* master, and exhibited the same queer metallic lustre.

The news spread rapidly. Everywhere the topic of discussion was these two mysterious missiles. Where had they come from? What did they contain? Explosives? . . . Then, why hadn't they exploded? Who was firing them? . . . and why? These and a hundred similar questions were propounded and discussed, but, alas, remained unanswered. Great crowds of curiosity seekers thronged down to Coney Island and jammed the beach and boardwalk in the vicinity of the spot where No. 2 had disappeared into the ocean. As a precautionary measure, the police roped off a considerable section of the shore and kept the excited public at a safe distance.



"They're gaining on us!" cried Fletcher. "That big car—the one belonging to Lun-Dhag!—it's in the lead, Cliff, and coming on us fast!"

At the same time all shipping was warned against venturing too close to the point at which the object had hit the water. The authorities were taking no chances.

Meantime, a systematic program of investigation and inquiry was instituted to determine the source of these objects. Radio messages flashed in all directions. Was there any gunning practice going on? . . . any experimentation on projectiles? . . . was it nothing more than a novel publicity stunt? . . . the start of an advertising campaign to introduce some new cigarette? . . . was it merely a practical joke of some sort? . . . a hoax? . . .

All inquiries proved futile. Not a soul appeared who could shed the slightest glimmer of light upon the phenomenon. The scope of the questioning was extended. Canada, Central and South America, even Europe sent back replies to urgent radio messages, admitting themselves just as completely in the dark as were the local authorities.

Queer . . . decidedly queer? Two strange objects drop into the ocean ostensibly from nowhere. How and why they were sent aloft no one could explain. Apparently they did not originate anywhere on the earth's surface.

It was not long before public conjecture and debate crystallized into a definite belief: *These missiles had come to us from outside the earth!* . . . The idea caught the popular fancy. A visitor from outer space! A message from some inhabited speck of matter lying out there in the vast interstellar regions. People talked of nothing else. The missiles must be recovered—their messages must be read. What? . . . Explosives? . . . Bosh! . . . If these projectiles contained detonating materials, they would have let go their charge the very moment that they fell. And here it was now nearly a week, and nothing untoward had occurred.

The belief that the two missiles really had an extra-terrestrial origin gained ground with each passing day, and even the most serious-minded, including some well-known scientific authorities, began to accept the idea as a reasonable working hypothesis. Preparations were rushed to make a detailed investigation of the submerged objects.

On the morning of the ninth day following the spectacular descent of the second missile into the waters of lower New York Bay, diving operations were started off the Coney Island shore. The waves had barely closed over the first submarine diver at that spot, when the world was electrified by news of the arrival of missile No. 3. Unlike the others, this one struck dry land. The passengers in a westbound railroad train, that was speeding on the trestle across the Hackensack Meadows of New Jersey, were thrown into a sudden mad panic when this unearthly thing swooped down in a brassy smear, and struck with a dull thud in the soft earth not twenty feet from the tracks. Many others had seen the approach of this phenomenal visitor from various distances, and the spot was the Mecca that soon drew thousands from the populous districts all about. Word flashed like lightning, bringing a milling throng that grew with each passing moment. All kept, however, at a respectful distance from the queer object. And a queer object it was . . .

Imagine if you can a torpedo-like cylinder, about eight feet long and two feet in diameter, tapering to a point at each end, and balanced upright with its nose partly buried in the soil. Apparently it was composed of some alloy resembling brass, although its color was somewhat lighter, and it glistened with a peculiar sheen that was totally unlike any brass ever seen on earth before. The sides of the missile were of the utmost smoothness—in fact the entire object gave the appearance of having been machined as a unit from a single piece of metal. Close to the bottom there projected from the body three slender rods of the same metal as the rest of the structure. These rods ended in flat, knob-like feet that rested on the ground and gave additional support to the upright mass. Opinion was sharply divided as to this tripod arrangement. Some of those who witnessed the arrival of the missile swore that these rods were not visible during the descent—that they shot out from the sides of the object the instant it hit the ground. Others were equally positive that the legs were there all the time, and that the mass landed squarely on the pointed nose and the three flattened knobs at the end of the rods.

Whichever way it had happened, there was this extraordinary thing standing erect and rigid, glistening with a strange, unearthly lustre in the bright rays of the noonday sun.

There was no doubt about it, now! . . . Everybody was convinced. A visitor from the skies! . . . A message from outer space! Was it the beginning of a military invasion? Was it a harbinger of peace and good will? No one knew. No one could even venture a guess. Why didn't the authorities do something about it? . . . Why the delay? . . . Valuable time was being lost, and no one seemed to know how or where to start! . . .

The police took immediate charge of the situation. A group of representative authorities was hastily convened, including some high military officials from Governors Island, and several scientists peremptorily summoned from their tasks in New York and Washington. Within an hour from the time that the projectile had settled on the Jersey meadows, the commission was at the scene, studying this strange visitor from space.

Apparently satisfied as to its peaceful character, the investigating group made bold to approach the object and study it closely. They circled it and deigned to feel its cold, metallic smoothness. They tapped it gently; the answering sound told them that it was hollow. An ear placed against the brassy surface could just make out a low humming sound, as of some mechanism in motion somewhere in the interior of the shell. The men went over the entire missile, even to the tapering end pointing skyward, which was examined with the aid of a hastily constructed scaffold put up against the side. Even the most minute inspection failed to reveal any break in the smooth sweep of the projectile's surface. The men could not discover any opening, not even a crack or crevice that would indicate a trap-door or other means of communication with the obviously hollow interior.

With each passing moment the handful of army officers and scientists became more and more perplexed. Nothing tangible—not a clue as to the meaning of it—no rhyme or reason about it at all. And the densely-packed populace, maintained at a reasonable distance by rigid police lines, were beginning to get ever more restless. The tension of the entire situation was becoming unbearable.

Then it happened . . .

One of the men might have touched a hidden button or control device. More likely it was the work of some automatic timing mechanism which had been set to operate after the lapse of a given interval. At any rate, a

long thin crack was suddenly observed to appear in the hitherto unbroken expanse of metallic surface. The slit ran longitudinally almost the entire length of the shell. Hardened military officials and staid scientists alike fell back in near panic, and viewed the phenomenon from a respectful distance. But nothing of a hostile nature developed—nothing more startling than the gradual widening of the narrow chink. The investigating commission drew closer, cautious to the extreme, while the encircling multitudes watched with bated breath.

Slowly the slit expanded, as though by the sliding back of a curved panel, until a rectangular opening was revealed, large enough to admit the body of a man. The investigators waited—the throngs of tense spectators waited—nothing happened. The hardiest of the official group ventured to peek into the interior. It was empty. The cylindrical compartment appeared to occupy the entire body of the shell, with the exceptlon of the tapering ends. An eerie sort of illumination, the source of which it was impossible to fathom, flooded the interior. The curved walls, as well as the top and bottom of the narrow chamber, were covered with a soft, cushion-like material, as though to offer a protection from bumps or jars to any being that might find itself a passenger in this queer vehicle—if vehicle it really was. But the compartment was undeniably empty. Not a thing, living or inanimate, was visible within.

But wait! . . . What was that oblong something lying on the floor, on the far side of the compartment? One of the officers reached in and gingerly extracted it. A box—a metal box, evidently of the same material as the shell, with a queer design engraved on the top. The hinged lid opened readily, to disclose a roll of what appeared to be a thin, delicate sort of parchment. A message! . . . Trembling fingers unrolled it.

Yes . . . a message! . . . *and in English!* . . . A queer angular scrawl, hair-like and quivery, but a real message in English, and not difficult to decipher. It's cryptic contents ran:

Send two of your leading chemists. The vehicle starts its return voyage at the next sunrise."

"THE next news-bulletin will be issued in fifteen minutes. Please staid by for . . .

Ray Fletcher snapped the switch of the radio with a slight gesture of petulance, and turned to his chum.

"Nothing but talk, Cliff. . . all talk and no action." He flung himself on a seat beside the other, and drummed nervously on the table top with his fingers.

Clifford Hale eyed his friend half smilingly. "Now look here, Ray," he queried. "What would *you* do in a situation like this? *You* know all the facts of the case. Well, what would *you* do?"

"Do?" echoed Fletcher with feeling. "Why, confound it all, Cliff, I'd show those devils, whoever they are, where they came off! I'd put a good healthy stick of dynamite underneath that all-fired contraption of theirs and blow it into a million pieces. The nerve of them . . . trying to threaten us this way . . . as though we aren't on to their methods!"

"Hold on a minute, my dear Ray," his friend rejoined. "Even the best authorities aren't agreed about this thing. So far, we're pretty much in the dark as to what it all means. We shouldn't jump at conclusions—it's too serious a matter to be treated hastily."

"Well, you agree, don't you Cliff, that this torpedo, or whatever it is that's standing out there on the Jersey Meadows this very minute, comes to us from some spot in outer space?"

"That's pretty well agreed upon by all those who have given the matter some serious thought."

"Right! And when they start demanding that we send them our best scientific brains, it doesn't look as though they are impelled by a motive of altruism or philanthropy, does it?"

"I'm afraid not, Ray, but that's all the more reason why we ought to proceed with great caution. If we demonstrate our hostility right off the bat—if we should treat this torpedo of theirs in the manner that you suggest—why, can't you see the result? What's to prevent them from dropping a whole flock of these shells right down on our heads—not empty ones like this one, but all loaded with some stuff that would smash us and our cities to atoms? No, my dear Ray, we can't afford to take any chances—we can't afford to act thoughtlessly and rashly. The authorities who are in charge of the matter are doing exactly the right thing—taking it easy—observing developments with extreme caution."

Still unconvinced, Fletcher deigned to check his galloping hostility, and to look at the situation reasonably. The two chums fell to discussing again the facts and probable significance of this extraordinary visitation—this had been their solitary topic of conversation ever since the first radio bulletin had come out with the startling information early in the afternoon.

"But what the dickens would they want with a couple of our chemists?" was Fletcher's insistent query. "If they are able to send these rockets or whatever you want to call them, down to our earth so neatly and accurately, then they must be miles ahead of us in scientific achievement and progress. Why then should they want to bother to send for scientists from the earth?"

"I'm sure I don't know," averred Hale seriously, "unless they want to get some bit of chemical information *they haven't* that *we have*. That idea isn't at all impossible."

"And then there's this note—in English," added Fletcher thoughtfully. "Those guys must be a pack of wizards to become acquainted with an earth language by long distance. Maybe they've developed a kind of high power televisionary something-or-other with which they can peek right down on us and study our ways and habits—and even our language?"

"Then, if this interplanetary race of people are acquainted with our earth so thoroughly," asked his chum, "I'd like to know what good it would do them to have us send them our chemists." Which brought them right back in the seemingly endless circle around which they had been arguing for so long.

Hale started off on a new track.

"That shell of theirs must certainly have a slick arrangement to enable it to find its way back to the exact spot in space from which it started."

"Maybe there's some kind of intelligent being that's hidden aboard," ventured Fletcher—"a thinking being that steered it down to earth, and will navigate to back."

"That's unlikely," replied Hale, "The radio news bulletins that have been coming all afternoon directly from the scene, have disproved that notion pretty thoroughly. The investigating commission of experts have gone over the entire projectile very carefully. Outside of small sealed compartments, one at either end, the shell is empty. These two tiny chambers are hardly big enough to act as

a hiding place for any thinking and intelligent being."

"Of course," put in Fletcher, "we may be all mistaken about the sort of intelligence we're dealing with here—perhaps the blamed contraption is being navigated and controlled by a mere *insect* or something."

"Well," replied Hale, "that's possible, no doubt, but the odds are all against the idea. Judging by the buzzing sounds coming from these nose and tail compartments, there appears to be some kind of automatic machinery running within—and it's adjusted to go off at sunrise tomorrow . . ."

"With or without those two chemists, they're asking for," added Fletcher in a significant tone. His friend nodded mutely.

They turned to the radio once more for further developments. There was little news to report. The debate which had developed as a result of the inexplicable demands contained in the strangely written note was still very spirited. The concensus of opinion leaned toward the idea that the command was an outrage—that it should not, under any circumstances, be complied with —that a severely worded note of reply be enclosed in the shell denouncing the entire notion and stating our defiance in unmistakable terms. There were some few voices raised in support of the opposite course of action. These maintained that it was a request from an apparently friendly race—that much good would accrue to the inhabitants of the earth by contact and exchange with a civilization which was admittedly far more advanced than any that we knew. Yet there were no bold offers from the proponents of this course—no intrepid volunteers to enter this extra-terrestrial projectile and be whizzed into space when the sun rose the following day.

THE evening wore on, with terse bulletins flashing through the air at regular intervals, and our two young friends riveted to their radio, as were countless thousands over the entire land and beyond the seas. A feverish excitement prevailed, which heightened as the fateful minutes ticked away. There was hectic activity, not only at the very spot where the ominous projectile stood, but in scientific and government circles everywhere. A thousand theories, a thousand conjectures—schemes and counter-schemes—plans of action hastily formulated and just as quickly abandoned—and the sinister missile stood grim and erect. Midnight came and went—nothing tangible had so far been accomplished, and only a scant four hours remained before the summer sun would poke its rim above the horizon for the start of another day.

There was no sleep for Cliff Hale and Ray Fletcher. Who could think of sleep when such momentous doings were afoot?

"What wouldn't I give to be on that spot over in Jersey right now!" Fletcher's voice bore an almost imperceptible tinge of hope, although he knew that the thought was a far-fetched one.

"I suppose though, that you couldn't get to within a mile of the place unless you could show a set of iron-clad credentials." He turned down the radio so that only a whisper remained of the blatant jazz band which filled in between the sententious news bulletins concerning developments about the projectile. For a few moments there was silence, except for the faint rhythmic beat of the dance orchestra.

Then suddenly Hale loosed an exclamation and jumped up from his position on the couch. He rummaged excitedly among some scattered effects in a desk drawer and presently emerged with a whoop of triumph, waving a blue card exultantly.

"And to think that I clean forgot about it!" he shouted gleefully—"that police card—the pass I got last spring from my Uncle Charlie—you know whom I mean—the deputy sheriff of Union County over in Jersey? It got us by the fire lines at that big Newark chemical explosion then, and by George, it ought to turn the trick for us here. At least, it can't hurt trying."

Fletcher promptly fell in with the enthusiasm of his chum, and they made an immediate dash for the Hudson tubes. It was well past one o'clock, midnight, when they reached their destination. Even at that ungodly hour they encountered a milling stream of curiosity seekers surging restlessly over the dark meadows in the vicinity of the projectile. Rigid police lines kept them back, however, so as not to hamper the operations of the officials about the queer object. The two bold adventurers worked their way resolutely through the throngs. Their precious pass worked marvels for them. A clear corridor was being maintained through the mass of packed humanity to enable the passage of cars bearing various officials, reporters, photographers and other accredited persons. Down this open lane Hale and Fletcher were hustled, until presently they stood in the very shadow of the awe-inspiring messenger from another world. The scene was illuminated by several powerful searchlights mounted on army trucks that were stationed within the cleared circle. The strong glare of thousands of candle power directed upon the upright shell threw it into bold relief against the inky blackness all about.

"What a queer looking affair!" breathed Fletcher into his friend's ear. They circled the metallic projectile, felt of its cold, hard surface, even ventured to take a peek into the mysteriously vacant and strangely upholstered interior. There was very little activity now among the group of officials about the glistening shell. For the most part they stood around in small knots conversing earnestly. The air of perplexity and tension was present everywhere.

"Lord!—what an adventure that would be!" whispered Hale as though he were thinking out loud—and indeed he was.

"Adventure?—What do you mean, Cliff?" asked Fletcher sharply, turning upon his friend.

"Oh . . . it just entered my mind what a great stunt it would be to go off inside of that thing when she starts on her return trip." Hale chuckled to himself softly at the mere notion of such an escapade.

"A great idea—that," laughed Fletcher, "provided you could arrange some way of getting back to earth after the adventure is over."

"Oh, don't think for a minute, Ray," returned the other with a smile, "that I'm proposing any such rash undertaking. "But," and now Hale's tone became thoughtfully serious, "the idea just popped into my mind . . ."

The two friends circled about among the aggregation of scientists, newspaper men, high government personages and assorted authorities clustered around the missile. They listened attentively to the agitated discussion in this or that group, venturing an idea here and there themselves. The sum-total result of all the argument and debate could be represented by one profound question mark. All that could be done was to wait and see

what the developments might be in this extraordinary episode.

The first faint streaks of dawn sent a new quiver of suppressed agitation through the assembled multitude. Aware that something startling was sure to happen at sunrise, thousands more came from miles about to swell the vast throngs that had remained about the scene throughout the entire day and on into the night. The police lines were forced back to a greater distance, so as to clear an even larger circle around the fateful shell. The aggregation of scientists and investigators drew back in groups of hushed tenseness. Everyone knew what was about to happen—the cryptic message, in the strange box that came with the projectile, had announced what the program was to be at sunrise. And there was not a soul in the vast assemblage who doubted for a moment the fulfilment of the schedule—there was something about the whole mystifying procedure that denoted scientific precision—harsh, cold, cruel methodicalness.

"Gosh, this is giving me the creeps!" Fletcher's hard breathing revealed his extreme agitation.

"Hold still! . . . here's where something's going to happen!" Hale gripped his chum's arm. Yes! there it was! . . . the first dazzling flash of light over the long Jersey City ridge to the east . . . the first slanting rays of the sun touching the closely packed meadows with beams of cherry and yellow—glinting menacingly from the metallic thing that reared its height on the level plane.

And, as if the magical touch of these rays had actuated some invisible mechanism, the sliding panel began to move—slowly at first, and then more rapidly, as though the huge shell possessed life—as though it wanted to be off and away, bearing in its empty interior a wordless message of negation, failure and defeat.

The panel slid tight with a deliberate click. A myriad horrified eyes were upon it as the projectile quivered slightly, and then suddenly began to ascend, leaving behind it, half buried in the ground, the three feet-like appendages. Vertically upward the glistening double-nosed shell swiftly rose, its brassy surface catching and scattering the rays of the rising sun. Straight up . . . with thousands of necks craning, and thousands of eyes straining to follow it in its flight. In less than a half minute the strange shell, still maintaining that accurately vertical path, was completely swallowed up by the mist and haze of the atmosphere above.

So ended that mystifying episode—for the time being at least. The whole incident might well be considered a bad dream, if not for those tangible proofs that this esoteric visitor left behind it—the three metallic supports that had held the shell in an upright position, the small hinged box with its queer designs, and the tersely worded message that it contained.

The tripod and box, apparently of the same metal as the torpedo, were subjected to chemical analysis. But the tests never got beyond the first stage, for the simple reason that the metal was soon found to be inert to all known chemical reagents. Further, it was infusible even in the intense heat of the oxy-hydrogen flame. Microscopic and spectroscopic tests yielded no more information than did the chemical tests. The metal remained just as profound an enigma as the shell and its purpose.

Comment and discussion were everywhere rife—what was this mysterious race out there in the interstellar void? Why did they require terrestrial scientists? Why had they picked on the earth? What means had they employed to propel and guide their space messenger? Had they aimed at any particular spot on earth or were they shooting at random? What automatic mechanism controlled the return trip through a trackless emptiness? Would this race of intelligent beings accept our wordless refusal as final, or should we expect a second chapter to this tense drama?

Debate . . . interrogation . . . conjectures . . . perplexity . . .

"THOSE dirty rats! . . I'd like to lay my hands on one of them this very minute!"

Ray Fletcher's fists clenched, and his eyes blazed with a fire that his chum had never seen there before. Hale made no answer, but turned once more to the newspapers spread out on the table before them. They contained all the blood-chilling details of the latest visitation from the sky.

On Tuesday at sunrise the Jersey shell had taken its mysterious departure into space under circumstances that Hale and Fletcher would not soon forget. For two days an expectant world had lived through a period of extreme tension. Something was going to "break"—that was a dead certainty—but what was it going to be? No one had the temerity to venture even a guess. Two days of anxiety and dread . . . and then had come the horrible "break" . . .

Yesterday, Thursday, Shell No. 4 had been sighted over the little village of Lake George, east of the Adirondack Mountains of New York State. Without any ado, it had fallen in the very midst of the motor tourist camp on the outskirts of the village, had detonated with terrific violence, and had converted a peaceful little vacation community into a horrible shambles.

"There, in the newspaper before them, were all the blood-curdling facts of the atrocity, the eye-witness stories, the harrowing tales of survivors and injured, the vivid news photos that told more than words could of the horror that had suddenly stricken a peaceful locality.

"What if that shell had landed in the heart of New York?" exclaimed Fletcher . . . "Can you picture the awful consequences?"

"It's bad enough as it is," mused Hale, "without trying to picture anything worse."

"But," returned his chum, "it's altogether possible that this one is only a beginning. There's no doubt that we're in for something—something too terrible to imagine. That crazy pack of scientific lunatics up there, wherever they are, have run amuck. We ignored their demands to come across with our two scientists and now they are showing us that they mean business."

"Something drastic will have to be done," was Hale's gloomy rejoinder—"but *what?*"

And his interrogation was echoed around the world in the discussions that raged feverishly as a result of the latest atrocity.

Again a flock of officials and scientists gathered at the scene of the new outrage. Fragments of shell were retrieved from the chaos of wreckage at the scene of the explosion. The metal proved to be that same resistant material, with which, at least superficially, the American chemists were now acquainted. The appearance of these fragments attested the terrific violence of the explosive used, as did the awful extent of destruc-

tion wrecked within a wide area of the spot where the torpedo had landed.

Interest immediately centered in the nature of the explosive used, for undoubtedly it was of a power far surpassing anything ever contrived by terrestrial chemists. For hadn't it shattered to tiny fragments the brassy metal which had proved resistant to all known chemical and disruptive agents? After a careful search of the spot, the scientists succeeded in gathering together a minute quantity of a queer yellow powder that might have been either some of the explosive itself, or some decomposition product resulting from the detonation. Beyond indicating traces of arsenic and zirconium, this material, too, defied the most peristent efforts of the analysts.

The next few days passed uneventfully. A week went by, and the hectic excitement engendered by this freakish series of occurrences began to cool off. Perhaps this was the end of the episode. Improbable though it appeared, maybe the nameless foe from outer space had decided to give it up as a bad job, and take its preposterous demands and its terribly swift form of vengeance elsewhere.

Projectile No. 5 arrived to shatter the feeble hopes which had grown up for a cessation of these one-sided hostilities. The new terror from the skies landed in a field outside of a small French hamlet about twenty miles from Paris. And there promptly followed a repetition of the entire drama of the Jersey projectile—the assembled throngs from near and far—the sliding panel—the metal box of strange workmanship—the same curt message enclosed—in French, this time.

Again intense excitement—consternation—what to do?—to comply?—to ignore?—to accept the inevitable reprisal in the form of a death-scattering torpedo dropped upon some peaceful community? . . .

Then came a wild proposal from an utterly unexpected source. Two French criminals, condemned and awaiting execution, came forth, independently and spontaneously, to volunteer their services in this emergency. They were willing to be placed in the shell and sent flying into space. As to what they could accomplish, they themselves were not very clear. They would make an effort to negotiate with the unseen power, possibly they could learn what their motives and intentions were. If they succeeded in returning to earth—how, they did not know, maybe by means of a similar projectile—they asked only that they be rewarded for their service with freedom. If they failed . . .

Aghast at the sheet foolhardiness of the proposal, the French authorities went into hasty consultation, and came to the conclusion that nothing could be lost by such a proceeding—at least nothing of any great value!—while immeasurable good might come of the project.

The two adventurers were therefore transported to the scene with great haste and were made ready for their flight into the unknown. It was close to midnight when preparations were completed. The shell was scheduled to go off at sunrise. To facilitate matters at the time of departure, it was decided to stage a sort of rehearsal. Consequently, the intrepid convicts were brought forth and given the necessary instructions. One of them then clambered up the side of the shell and slipped through the narrow aperture into the padded interior. The other followed on his heels. There was just sufficient space within for the two men to stand up side by side, with scarcely enough room to turn around in, and no more.

The convicts were hardly within the chamber when a phenomenal thing occurred. Without a warning sound or sign, the metallic panel slid swiftly in its grooves. Fingers and toes were hastily snatched from the path of the knife-like edge in the nick of time. Snap! The door clicked shut. An ominous quiver, and the glistening shell slipped upward into the midnight sky, carrying inflamed expectancy within, and leaving intense consternation behind.

"YOU'VE sure got to hand it to those two French murderers," vouchsafed Fletcher with feeling, "—to risk their necks the way they're doing now."

The two chums were watching these extraordinary developments, as were millions of others, through the medium of continuous news-broadcasts from the scene.

"Oh, I'm not so sure," returned Hale, "that the odds are *all* against the fellows. We know at least there's a way back to earth that's available to them if they can only use it. I mean, in one of those shells. Anyhow it's certain to be a great adventure—while it lasts."

Fletcher eyed his friend narrowly. "Say Cliff," he asked with deliberation, "didn't I hear you use almost the same words over near that Jersey shell a couple of weeks ago? *'Lord, what an adventure that would be!'* . . . Why, Cliff! . . ."

"You're right, Ray," returned Hale with a chuckle, ". . . and I still believe that it would be *some* stunt."

"Well, I'll be blowed!" Fletcher exhibited unvarnished astonishment. "I'd almost believe that you wish right now you were one of those two convicts sailing up there among the stars at a thousand miles a minute! . . ."

Hale deigned no reply, but turned to the radio instead to tune in the latest news regarding this "great adventure."

There were no developments for two days, during which Hale and Fletcher maintained an almost constant vigil at their receiver. They were both glued to the instrument, when, on the third day, the fateful word was broadcast of the return of shell No. 5 to French soil—this time in the eastern part of the country near Sedan. They were spellbound at the tense word picture of how the shell had dropped from the sky, how the sliding panel had opened, how the two lifeless bodies had tumbled out to the ground, how the door had clicked shut again, and how it had taken its departure almost before the horrified observers could fully realize what was happening.

Post-morten examination of the two unfortunate prisoners revealed no exterior marks on the body. Lungs, heart and other organs gave evidences of instantaneous cessation of vital functions in a manner strikingly similar to the results of electrocution.

"Poor fellows," remarked Hale, "they meant well . . ."

"Not such a *'great adventure'* after all," was Fletcher's dry comment.

A few hours after the dramatic delivery of the two bodies, an explosive shell dropped suddenly into the English Channel about ten miles from Havre and sent a tremendous geyser up into the air when it detonated. Fortunately there was no damage to nearby shipping, although a miniature tidal wave was rolled up on the French shore by the explosion. The following day, however, a second torpedo landed squarely on a fishing village in Normandy, creating a hideous duplicate of the holocaust in the camping grounds near Lake George.

The seriousness of the situation was more apparent

than ever. The human race was dealing with a cruel, relentness foe, empowered to strike swiftly and terribly at will. And there was not a single means available for the terrestrial people to defend themselves.

Again a lapse of a few days, while millions everywhere wondered where the next blow would strike. And once again the radio blasted forth in stentorian accents of the latest visitation—the arrival of a projectile on English soil, with the same cryptic demands for chemists—British chemists, this time.

When the news came of the bold course of action immediately decided upon by the English authorities, Fletcher, rooted in front of his precious radio, slapped his knee approvingly, and chuckled with boyish glee.

"That's the ticket, Cliff!" he exclaimed. "That's the only way to answer those confounded devils. A nice hefty load of high explosive dropped right down on their heads—and in their own torpedo, too. Those Britishers ought to stick a label on it before sending it back: *Many happy returns of the day!* Ha—ha—that's rich! . . ."

Hale was thoughtful. "It doesn't look so good to me," he ventured. "What if the shell *is* sent back with a cargo of explosives, and it blows up when it lands at its original starting point? At best, it's only a stab in the dark. We don't know whom we're fighting, how strong they are, what further means they have at their command, besides this terrible engine of destruction which they have already shown us. If they want to, they can wipe us right off the map, and we have practically no way of either defending ourselves or carrying the attack to them."

Fletcher was insistent. "I still believe that this idea is worth carrying out. At least it will show them that we don't intend to let ourselves be browbeaten or buffaloed into accepting their demands. It will show them that we earth people are capable of fighting back."

Over in England, at the spot where the newest brassy monster stood with its yawning cavity wide open, great excitement prevailed. Opinions differed sharply as to the expediency of the contemplated move. Many denounced the proposition as foolhardy. The majority staunchly endorsed the idea as a brilliant gesture of defiance.

In the early morning hours a quantity of high explosives was hauled to the scene and carefully stowed away in the dimly lighted and strangely upholstered interior. Nearly a thousand pounds of detonating material was packed into the shell—nearly a thousand pounds of the most violently disruptive explosives known to chemists and ammunition manufacturers.

Apparently the automatic device that had operated so swiftly in the case of the French convicts did not work on this occasion, although the assembled authorities were prepared for any eventuality. Nothing happened for an hour or more until the first rays of the rising sun fell on the projectile with a scintillating flash of light. Then, snap! . . . The door shut, and off went the shell with its deadly cargo.

Misgiviings of the success of this mad gesture began to develop almost before the projectile was out of sight. The charge of explosives would undoubtedly cause some damage. But it certainly couldn't wipe out the terrible menace at one stroke. And what would be the inevitable result? A hail of death and destruction such as the earth had never witnessed before.

It came! . . . Not a hail of havoc and slaughter . . . just one single shot that descended near London. But that lone shell, like the others that had fallen in America and France, laid waste a large area, and brought instant and violent death to hundreds.

A most startling discovery was made by one of the group of chemists probing at the scene of the blast. First he found small quantities of the same yellow powder previously obtained at the spot where the initial explosive shell had dropped—a circumstance that was more or less to be expected. But far more astounding was the discovery of definite traces of chemical residues that could have resulted from only one phenomenon—the detonation of the original explosive cargo that had been shipped off into space two days ago.

What could that mean? Simply this: The heavily freighted shell had undoubtedly returned to the hostile world out in space, but had never exploded there. Probably it had been intercepted in its flight and the nature of its contents revealed. And then what did those insidious beings do? Very easy to see! . . . They had removed part of the load of explosives, substituted some of their own, and sent it back again with its message of terror and death.

The entire matter was as plain as day to everyone. It was just a subtle and yet very definite statement from the attackers that they were invulnerable—that nothing which the earth people could do in the way of opposition would be of any avail to them. Indeed a terrible situation to contemplate!

Another lapse of several days, with all the world tense. Then a projectile came hurtling down to earth, falling with a huge splash into the North Sea near the mouth of the Kiel Canal. Nothing happened. No one could essay a guess as to whether it was another empty torpedo with its crisp message to send two chemists, or whether it was a dud—an explosive shell like the others, which had somehow failed to go off.

On the following day another such missile dropped into Lake Constance on the border between Germany and Switzerland. No damage . . . No new developments.

Then came the next one—the harassed populace had almost lost track of its particular number in the steady stream of brassy projectiles that had been raining down upon the earth for the past several weeks. This one plopped down squarely in the centre of the Templehof airport just outside of Berlin. The message it contained was now in German. It embodied the same peremptory demands as before—to send chemists—the shell leaves at sunrise.

Evidently violence or deception would bring the earth inhabitants nothing. Doctors Wolfgang and Schmidt, two young but very promising members of the chemistry staff at the University of Berlin, volunteered to step into the breech. Fired with a spirit of adventure and service, they offered to take their places in the projectile, and go off on a mission that would perhaps bring peace and security to a sorely tried earth.

As in the case of the French convicts, the door of the shell slammed close the very instant the German chemists were inside, and in a few seconds the space vehicle was swallowed up into the night sky.

The inevitable two-day interval dragged by, with the entire world tense and expectant. News would come momentarily—news that the hail of havoc from nowhere would cease—news that the two emissaries had succeeded in establishing amicable contact with the hostile people in space.

Another day wore on with no word or sign. Still another day. Now it was a week. What had happened out there on that strange world? Was the mission of the two indomitable German chemists to be favored with success? Was this to be the end of . . .?

Crash! . . .This time the jrojectile landed on the east shore of the Rhine near Mulheim. Clic! . . . The panel slid open! Out tumbled the limp bodies of the unfortunate scientists! . . . Whizz . . . The empty shell was gone as suddenly as it had appeared.

Smash! . . . At almost the same instant an explosive missle came down in the German Black Forest, and laid waste a vast area. There were no casualties, but the destruction was nevertheless terrifying to behold.

"WELL, this old earth is up against it now for sure!" Morosely Ray Fletcher scanned the morning paper with its graphic telephoto reproductions of the latest atrocities. "We send them what they want . . . and look at the result!"

Hale glanced up from his close perusal of the dramatic news accounts. He stroked his chin meditatively. "I've been giving this matter a lot of thought, Ray. And who hasn't? A certain idea has been developing in my mind, and it's getting to have more and more of a definite shape, the longer I mull over it. If there is anything to my notion, then it may go a long way to explain this entire string of strange happenings since that first shell slithered into the ocean a number of weeks ago.

"What's your idea, Cliff! . . . let's have it!" Fletcher was all attention.

"To start with, Ray," began Hale, "there's no question but that those projectiles come from some inhabited planet or other heavenly body out in space."

"Everybody will agree to that."

"And this race of beings, whatever they are, must be advanced to a state of scientific development which is far superior to our own. With their automatically operated space vehicles, their terrifically powerful explosives, their long-distance command of our earth languages, they certainly must be of the highest degree of intelligence."

"And," broke in Fletcher," "the uncanny way they have of dispatching their shell right to the spot that they're aiming at—and how about the automatic return voyage? They're a slick race, they are!"

"Hold on a minute, Ray—*there's* just the point I'm driving at—*the aiming of those shells.* Did you ever stop to consider whether they're really aiming at any given places in their shots—or are they just firing at random?"

"Well, Cliff, I wouldn't call it actually shooting at random. Look at how neatly they drop that same old message of theirs, worded in just the right language for each particular country—America, France, England, Germany. If that isn't good aim, then I'd like to know what is."

"You're right, Ray, as far as that goes, but I think there's more to it than that. It's my idea that their aim isn't as good as it might be—as they themselves would like to have it. I believe there's a whole lot more tied up with this aiming propostion than you would suspect off-hand. Let's go over it from the very start:

"The first projectile that we have any record of fell into the ocean about fifty miles from New York. We'll call that one the very first shell, although we can't be definitely sure that there were no others that dropped into the sea unknown to anybody. The next one came down a little closer to land—off Coney Island. After that followed the Jersey projectile, with its message. At least three shots—and only one effective. Wouldn't that show poor aim?"

"Not entirely Cliff. Maybe you could do better shooting at a fly on a barn door at a range of ten miles, eh? Anyway, how do you know just what they were trying to hit? Maybe the first few shots were only meant to be warnings—to get people interested and wondering—to sort of pave the way for the real one."

"That's possible, but it doesn't seem likely when you consider the rest of the story. The next shell dropped by the Adirondacks, hundreds of miles from where the others fell. My notion is that if their aim was all that it should have been, they would have had the explosive shell land in or near New York, and done some real damage—thank heaven that it did not!"

"Then the scene changes to France. The first shell falls some distance from Paris. The murdered prisoners are returned miles away to the east. In retalliation, an explosive shell drops into the Channel without doing any damage. Another comes down and wrecks a village on the coast. It seems highly probable that they're aiming for Paris, but that their shooting is erratic.

"The same situation is evident in the English and German shells. I can't believe that these shots were deliberately scattered and therefore wasted as some of them undoubtedly have been. It's more reasonable to assume that the mysterious people from space, although they possess a terriby potent weapon in this automatic vehicle, haven't quite got the thing down to perfection yet. It looks to me very much as though it gets beyond their control at times. That assumption would certainly explain the way these shells have been dropping all over the map."

Fletcher was buried in thought for a few moments. "Well, all right, Cliff. Suppose that those birds up there *are* having trouble with their aim, then where does that get us?

"My guess is, that their demand for terrestrial chemists is in some way tied up with their balky mechanism. Probably the operation of their projectiles depends on some chemical reaction or phenomenon which they haven't yet learned to control adequately. Maybe they have an idea that they could draft or kidnap some of our own scientific skill to lend them a hand in solving their problem."

"I see . . . and they're sore at us for not letting them have what they want," added Fletcher. "so they can give us a sample of what they are capable of doing in the way of revenge? . . . Mm-m! . . . There may be something to it. But wait, Cliff! . . . Didn't those two German chemists go up as per instructions, and you know what happened to *them.* How would you explain that, eh?"

"I won't even try," laughed Hale. Remember that I'm only venturing a guess as to the meaning of this entire puzzle. I may be all wrong about it."

A lapse of silence, in which both young men remained buried in thought.

"If only we had something definite to work on," remarked Fletcher. "If only our scientists could get into that shell, take it apart and see what makes it work, maybe we'd learn all about it. Maybe we could even

duplicate the thing, improve on the mechanism, and give them a taste of their own medicine. But, darn it, the machinery comes to us all sealed up in that resistant alloy of theirs, and the shell is whisked back before we can make a real try at it."

"And when the thing *does* come to stay," added Hale significantly, "it's blown into a million pieces and there's nothing left to examine."

"Oh for one good look into that operating chamber," breathed Fletcher fervently. "I'd bet that you and I would find our college chemistry a mighty handy pack of information if we could tackle the secret of the driving machinery. That's all assuming, of course, that your hunch is correct."

"I think you're trying to josh me, Ray," laughed Hale, with a playful slap on the shoulder. "But what I'm going to tell you now is no joshing—it's cold, hard fact. And it may upset you. Here goes: *I've just about made up my mind to take a trip in one of those projectiles! . . .*"

"You . . . *what?*"

"I mean it, Ray . . . a return trip to the land of this hostile race . . . and I don't care how I manage to do it . . . but I'm going the first chance I get."

"Cliff . . . you're crazy!"

"I was never more earnest in my life, Ray. The proposition appeals to me. The idea has been working upon me until it's become an obsession."

"But the danger."

"There is no danger, as far as the trip over is concerned. Didn't those Frenchmen and Germans get across safely?"

"Yes . . . and how did they look when they came back? . . . Cliff, you're mad! . . ."

"I'm willing to take my chances when I get there. And as for getting back to earth, you know for a fact that the journey has been made at least ten times by various projectiles. Doesn't that show that it can be done? I tell you it's that *great adventure* we've spoken of before . . . and now, Ray, I'm going to pop a mighty important question on you. *Are you with me?*"

PHILADELPHIA . . . .

Two very eager-eyed young men hopped off the flyer from New York and were presently racing to Fairmount Park on one of the speediest taxi trips ever witnessed in the Quaker City.

"You have your automatic, haven't you, Ray?" inquired Cliff Hale, meantime feeling for his own.

His friend tapped his pocket significantly. "And the extra ammunition, too. For a long trip such as we expect to take, we're traveling pretty light, aren't we, Cliff?"

Hale only smiled in reply, and peered anxiously out of the cab window at the flying scenery of buildings, streets and endless traffic.

There certainly had not been very much of a wait following Fletcher's decision to cast his lot with his adventurous chum. In less than twenty-four hours after they had consummated their deathless pact, came the news. And what news! . . . The whole thing seemed almost to be made to order for them.

The new shell had landed practically in their very back yards—to be exact, on a lawn in Fairmount Park, Philadelphia. And to be sure, the inevitable message was there—in the same identical phraseology as the one delivered on the Jersey meadow. Apparently that infernal race on that distant world did not believe in giving up so soon—and were not inclined to waste words about it. Possibly they were settling down to a contest of attrition. Either the earth inhabitants will send them what they asked for, or will be blasted into eternity piecemeal by the returning torpedoes.

En route to the scene of the newest visitation, Hale and Fletcher agreed upon some sketchy program of action. They meant to take no one into their confidence, believing that absolute secrecy was imperative for the success of their wild venture. For wild it was—both of them were prepared to admit that—wild, and fraught with the utmost hazard. They planned to execute their bold plan at one sudden stroke, and be off on their dangerous errand before the authorities would have an opportunity to interfere. Any formal presentation of the plans, and discussions, questionings, bickerings would mean delay, fatal wasting of precious time—perhaps defeat in their contemplated course of action.

The park was alive with excited thousands when the two young adventurers reached their destination. How they were going to get through that seething multitude and past the rigid police cordon that had been thrown about the metallic monster was indeed a problem. They possessed no such lucky credentials as was the case in the Jersey affair.

But fortune certainly smiled on them here at the very initial stage of their venture into the unknown. A car with a "press" tag on its windshield was grinding its tortuous passage along the narrow corridor leading to the spot where the projectile reared its nose to the sky. Why, hello! . . . weren't those two men in the motor the reporters with whom they had become so well acquainted up there at the scene of the Jersey shell? . . . To be sure they were! A hail . . . a cheery greeting—a hurried explanation—and the two soldiers of fortune were rolling along toward the centre of things, as official-looking as befitted the circumstances.

Presently they reached the upright shell, with its yawning doorway revealing the same ghostlike illumination, evident even now, in broad daylight, and the same luxurious upholstering as before. About this inexplicable visitor from space there was as usual the inevitable massing of officials and scientists. But Hale and Fletcher immediately observed among the assembled authorities the absence of indecision and debate that had characterized all the other visitations. Apparently a definite course of procedure had been agreed upon, and the vigorous activity that was manifest all about the scene indicated that the plan was being carried out apace. A few inquiries made by Hale soon revealed the trend of affairs.

"Well, what do you know about that, Ray!" whispered his chum. "The've decided to prevent this old shell from flying back!"

"Prevent it? . . . How?"

"By chaining it down to the ground. That engineer over yonder just explained it to me. They've sent to Lakehurst posthaste for a special metal nosepiece used to anchor a dirigible to a mooring mast. They're going to slap that down on the head of the projectile and fasten it my chains running to the ground. You can see that gang of men over there driving those long steel rods into the earth. They expect to have more than fifty of them sunk about two feet apart in a great circle around the shell. Then they'll anchor the metal nose-

piece tightly to these posts—and there you are! At sunrise tomorrow the torpedo remains where it is . . ."

"And we remain where we are, too! . . . Wonder what they expect to accomplish by this new stunt."

"Lots . . . if it's done right. They can haul the thing down and make a real try at getting into the mechanism chamber. And if they only succeed in breaking in, then the secret of what makes the shell operate wouldn't remain a secret very long."

"Looks like our trip is all off, eh Cliff?"

"Not by a whole lot, Ray! There's no telling how long it will take them to get into the engine room—if they can get in at all. And we may expect a flock of explosive shells down on our heads in very short order if there is any delay in the return of the projectile. If we don't. . . ."

A raucous medley of police sirens heralded the approach of the truck from Lakehurst. Under official motorcycle escort it bore the huge conical nosepiece for anchoring down the flighty visitor from the uncharted depths of space. A scaffolding had already been erected about the shell. A huge derrick now swung into action to hoist the heavy metal cone into position. The clanging of ponderous chains resounded, mingling with the steady pounding of pneumatic hammers as the long bars were being driven into the earth in a circle of steel that was steadily growing around the upright thing in the centre. It was apparent that the engineers in charge of the project were in grim earnest. That strangely glistening space-traveler was to travel no more—if they could help it.

Hale and Fletcher were watching these feverish activities with deep apprehension.

"Our best bet, Ray," whispered Hale hoarsely, "is to go through with our original plans." Fletcher nodded vigorously.

"No good can come of this anchoring idea," continued Hale—"at least not at this stage of the game. I'm dead certain that we can accomplish something of more real value if we carry on just the way we worked it out . . . before it's too late. Are you all set, Ray?"

Again a mute nod from Fletcher, with a firm squeeze on Hale's arm to signify: "I'm with you!"

"Then we'd better hurry! . . . If they ever get those chains fastened down, it's bye-bye trip! . . ."

The two young adventurers circled slowly about the structure. Already the massive metal cone was in place aloft, and a dozen heavy chains dangled from eyelets around its circumference. Several of these chains were now being stretched taut and clamped to the protruding bars in the bristling circle of steel stumps.

"Now!! . . ."

Hale darted forward and clambered nimbly up the wooden framework, with Fletcher at his heels. Ejaculations of surprise! . . . shouts of warning! . . . commands! . . . threats! . . . The two intrepid youths heeded none of them. In a flash Hale was at the doorway. With a leap he was within the padded compartment. Turning, he seized his friend's outstretched arm and hauled him in alongside himself. Pale and tense they faced each other in the none too roomy chamber, while pandemonium reigned without. Workmen were dropping like flies from the nose plate and the scaffolding, while on the ground engineer and laborer, scientist and general, scurried off to get as far away from the shell as possible. For everyone was entirely familiar with the inevitable course of events from now on.

Scarcely were the two hardy young men inside of the projectile when, as every soul witnessing the dramatic scene well expected, the panel slid shut. That same sharp quiver as once before, only with more convulsive violence, as the shell tugged at its flimsy moorings.

Smash! . . . The monster, now galvanized into life, teetered crazily and the flimsy wooden framework fell away in a tangle of ruins.

Crunch! . . . Snap! . . . The few chains that essayed to hold it to the ground tightened, then parted like threads of silk.

Thrown over from the perpendicular by the powerful reaction, the shell dipped violently. The conical plate was torn from its position up at the nose, and was flung with a resounding crash down upon the wreckage of scaffolding, derricks and assorted machinery below. The cries of warning had served to clear the immediate area an instant before the disaster, so that there were no casualties.

Freed now from all man-made restraints, the vehicle quickly righted itself, and ascended swiftly with its unexpected human cargo. A mere speck in the sky . . . and now it was gone!

Within the flying projectile the young voyagers stood face to face with muscles taut, holding each other firmly by the hands, and bracing elbows and shoulders against the padded walls for support. A pale phosphorescent light bathed the chamber. They essayed a word or two of conversation but the loud and incesssant humming of the driving mechanism coming from overhead and beneath their feet rendered that ineffectual.

Hale knew that the speed of the space vehicle must be tremendous, yet there seemed to be no sensation of change of velocity following the first violent swaying and tugging before it righted itself. He wondered in a vague sort of way how the terrific acceleration would affect them. But dimly in his mind the thought circulated like a haunting ghost: "The others got there safely—the French convicts and the German chemists—they reached their destination apparently with no ill effects."

Presently he began to experience a queer numbness, first in his legs and arms, and then a slow progressive advance throughout the body. His limbs became feelingless and as heavy as lead. A strange, almost scared look in Fletcher's eyes told him that he too was undergoing those extraordinary bodily manifestations.

With muscles and tendons drawn rigidly stiff by that inexorably spreading paralysis, they stared wide-eyed into each other's pale faces and wondered what was to come next. Now Hale began to feel a swimming sensation in his brain, accompanied by a violent nausea. In his ears a steady buzzing swelled up to mighty roar that drowned out the drone of the vehicle mechanism. Try as he would, he was unable to shake off the fatal drowsiness that was gradually overpowering him. He felt his eyelids droop and his vision blur. His companion's face, a few inches in front of him, now appeared like a shapeless gray blotch at a vast distance. He struggled hard to fight off that advancing wave of unconsciousness, but it was at best a feeble effort. The cramped chamber, his chum in front of him, the eerie light, the soft upholstery—all began to swim in a sickening circle before his eyes. Faster and faster sped this giddy kaleidoscopic whirl—and then suddenly a vast, engulfing sea of darkness and oblivion. . . .

A SUDDEN flood of light that hurt the eyes . . . struggling consciousness returning to normal . . . a gradual fading away of that overpowering rigidity . . . in its place a flaccid limpness . . . an unsteadiness in the knees . . .

The harsh whirring overhead and underfoot was gone, the vehicle was now motionless. Hale blinked at the uncomfortable glare of light and painfully turned his head to investigate. It came from without, through the open doorway of the projectile. He faced his companion again, to find him going through the stages of recovering conscoiousness.

"Ray . . . Ray!" Hale seized him by both shoulders and shook him as vigorously as his own still feeble muscles and the narrow confines of their compartment would permit. *"Wake up! . . . we're there!"*

He poked his head out of the doorway and glanced hastily about. The shell was standing upright in a grooved metallic framework, into which it had apparently been designed to slide. They were not out in the open, as he had vaguely expected they would land, but in some chamber, large in dimensions, with a curved roof that met the grooved framework far overhead. A large circular hole permitted the frame to continue on beyond. Hale saw familiar blue sky through this opening.

"What . . . what's up?" came a weak query from Fletcher.

"Come on!" returned Hale in a whisper. "This is the last stop! . . . Here's where we get off!"

He swung out upon the crossed girders just within reach through the doorway, found his strength and assurance returning rapidly, and quickly clambered down to the floor. Fletcher followed as nimbly as he could, and presently they stood together, gazing wonder-eyed upward and all about them.

Apparently their projectile had executed some kind of flip-over in its passage through space, because it had slid neatly into its supporting frame bottom first. This structure was obviously fashioned of the same yellowish metal of which the shell itself was made. Looking about them, they saw that all parts of the chamber—floors, walls, ceilings, were also made of this foreign alloy. Up where the metallic walls met the curved roof, a circular row of large glassy globes sent down a steady glare of illumination, bathing the entire room in a flood of yellowish light.

"Nobody to meet us at the station," was Fletcher's dry comment, although his hand, held in readiness close to the pocket containing his automatic, somewhat belied his levity.

They glanced cautiously about the chamber. Besides themselves, there was not a living thing visible—human or otherwise.

"I guess they don't expect us," whispered Hale. Let's take a look around the place."

They tip-toed warily around the shell standing wedged in its supporting frame. The walls of the room were smooth and unbroken, except for some thin, longitudinal crevices which might or might not denote sliding panels similar to that on the projectile.

Suddenly Hale turned to Fletcher with a low exclamation. He inhaled deeply several times.

"It didn't occur to me before," he said, "but look! our breathing is perfectly normal—just like it is on earth. That means that this planet, or whatever it is, has about the same kind of atmosphere. That's lucky for us. And another thing. Ray! . . . weight . . . gravitation . . . you don't feet any extra heaviness or lightness, do you? Well then there's another circumstance in which this strange world we're on resembles our old earth."

"Never gave those matters any thought," whispered Fletcher. They continued their explorations. "Gosh," he added, "where do you think everybody is right now? Wouldn't you naturally suppose that they'd have a reception committee on hand to welcome us?"

Again Hale stopped suddenly in his tracks, a puzzled look in his eyes. His brow furrowed.

"Gee, I shouldn't be a bit surprised," he muttered, half to himself, "if that isn't the explanation after all . . ."

He turned eagerly to his friend. "I've got a notion it's that same old aiming difficulty in another form. By George, I'm almost sure of it! There's something wrong with the mechanism up in that shell. It doesn't travel true either coming or going. It's not only erratic in aim, at times, but also in speed of flight. We probably arrived away ahead of schedule. That might explain the fact that there's nobody around. They're probably busy somewhere else—maybe cooking up some more schemes for carrying out their campaign of intimidating the earth. But they'll be on the lookout for us pretty soon—that's dead certain! . . ."

Rounding the central framework, they came across a narrow opening in the wall which they had not observed from their previous position on the other side of the chamber. It led off at an angle into a dimly lighted passageway. A swift exchange of meaningful glances served to crystallize their course of action in an instant.

"Come on!" breathed Hale. He stepped through the opening. Fletcher was right behind him. They had not given a thought, at the outset of their mad adventure, of providing themselves with a flashlight, or in fact, with any manner of extra luggage, other than their firearms. So that they found themselves somewhat at a disadvantage here in the semidarkness of this corridor. But there was sufficient light to enable them to proceed safely, although with a slow and cautious progress.

Hale soon became conscious of a low, throbbing sound coming from behind the metallic walls on both sides of the passageway. With each chary step forward, the vibration became louder. Fletcher now showed that he was aware of it too.

"Some kind of machinery," he ventured. "Maybe their power-house or laboratory." Hale nodded.

They had now progressed about two hundred feet along the passage. Glancing back, Hale could see the doorway an oblong of yellow light. Just at that instant he observed a shadow flit across the area of illumination—then another and still a third.

He gripped his chum's arm and pointed back. Nothing to see now, save the lighted doorway and the bulk of the shell in its metal frame beyond.

Then a sudden commotion in the projectile chamber. Shouts, shrill cries, a confused hubbub of agitated voices, and the patter as of many feet.

"The reception committee!" whispered Fletcher . . . "A little late . . . but anxious to meet us just the same! . . . Shall we go back and show ourselves?"

"No! . . . wait!" was Hale's hushed reply. "We've no idea how they'd receive us . . . Better if we keep out

of sight for the present . . . if that's at all possible!"

The two adventurers in this strange realm crouched in the semidarkness of the passageway, their guns held in readiness, their eyes on the opening through which they had just come.

A few breathless moments, and then a form shot through the lighted doorway and raced down the corridor toward them—another was at his heels—more crowded through and followed the leader precipitously.

"They've spotted us!" cried Hale, springing up lithely, gun in hand. "Let's run for it, Cliff . . . but no shooting . . . yet!"

The creature in the van was now halfway down the passage. In a fleeting instant Hale sized him up—in form, undeniably human, short, thick-set, with features that resembled the Oriental—high cheekbones, slanting eyes, a leering mouth. He bore down upon them waving his arms and emitting harsh, guttural noises from his throat.

The two young soldiers of fortune wheeled swiftly and sped down the passageway. Behind them rose an increased confusion of many feet and many hoarse voices raised in noisy tumult. Hale and Fletcher dashed on, not quite clear in their own minds as to just where they were to seek refuge . . . or from whom. They were only obeying the natural instinct to run.

Suddenly Hale stopped dead in his tracks. A sharp cry came from directly in front of them. Apparently out of nowhere there materialized another of the same tribe, right in their path. He came forward menacingly, shoulders hunched, head low, beady almond-eyes glittering in the half light. A small device was clutched in one hand—evidently some kind of weapon. Behind this creature two others loomed with equal menace.

Surrounded! . . . Behind, an advancing horde . . . ahead, more of the evil clan. No use delaying now! . . . Action! . . .

"Let 'em have it!" shouted Hale, punctuating his cry with a shot that reverberated like a clash of thunder in the low corridor. The advancing creature, now almost upon him, uttered a shriek and crumpled forward. Once more the gun spoke. The second figure folded up with a low moan, his weapon clattering harshly to the metallic floor.

At almost the same instant Fletcher, who had whirled about at the rapidly approaching mob at their heels, fired point blank into the dense mass, pulling the trigger as fast as he could work his finger. Cries of pain mingled with shots of chagrin and defiance. The crowd of beings, momentarily halted by the sheer audacity of the attack, recovered in a few seconds. They swept over their fallen comrades with a roar of vengeance. One look in the other direction now filled the two lone combatants with dismay. A dozen new comers had sprung up from some mysterious source and were bearing down upon them.

A few more scattered shots from the guns—then the two were engulfed as by a tidal wave. And with overwhelming suddenness there also came that same enervating paralysis that had gripped their bodies on the trip in the projectile. As if bound by cords of steel, their hands and legs became rigid and motionless. Muscular movement became impossible, but mental activity was unimpaired. Although petrified in body, they were, strangely enough, keenly conscious of everything about them. The sense of sight was apparently not affected by the queer paralysis, but their powers of speech and hearing were mysteriously gone. The two companions in distress exchanged glances that mirrored bewilderment mingled with hope and dauntless determination.

"This is a fine mess we're in!" the glances said. "Wonder how we're going to get out . . . but we will, somehow! . . . no worry about that! . . ."

A hurried consultation was held among several of the mob who appeared to be persons in authority. Presently the two rigid prisoners were hoisted bodily upon the shoulders of several of their captors and carried down to the end of the corridor, through a doorway, and down several flights of stairs, finally being deposited in a small cell with more force, they thought, than the circumstances of the occasion warranted. The crowd departed up the stairs. One leering Oriental face lingered for a moment or two at the doorway, while a contrivance that he held in his hand was directed at them as though it were a hand flashlight. In an instant, he was gone, not even bothering to close the panel that served as a door to the cell.

Hale and Fletcher were left lying where they had been cast on the bare floor, paralyzed hand and foot, deaf and speechless.

No . . . not deaf, for Hale could hear the steps of the last to leave retreating up the stairway and through the passageway above. Could the final queer manipulation of this individual have been responsible for the restoration of hearing? . . . then perhaps . . .?

"Hello! . . . Hello Ray! . . . Can you hear me? Can you talk?"

"Hello yourself!" came back rather weakly from the rigid figure beside him. "Gosh—I'm feeling funny Cliff! . . . can't move a muscle of my body! . . . And how are you?"

"Same," retorted Hale. "They've got us just where they want us."

"And now, what?"

"Search me, Cliff! We've just got to wait and see."

Fletcher switched to another topic.

"Say, Cliff . . . aren't they queer looking birds?"

"Yes, queer, but not what I had thought we would see. They certainly don't look like creatures that you'd expect to encounter on a distant world. They look to me like some kind of Mongolians or other Asiatic types."

"Yes, so they do. Chinese, I'd take them for."

"There are only two reasonable explanations in my mind as to the presence of these Orientals here. The first is that this kind of creature is the normal native type to be found on this planet. The other is that the race of people which dwells here has, in some way, made a previous and unknown raid on the earth, probably somewhere in Asia, and has captured and enslaved a number of the natives."

"That's very possible."

"Or . . . there's even a third possibility." Hale chuckled to himself at the mere thought. "There's even a possibility, Ray, that we *haven't even left the earth!*"

"That we haven't left . . . ? . . . Why, Cliff, that's ridiculous!"

"It's possible that we merely traveled up a certain distance and then came down again somewhere on earth."

"Rubbish! . . . I don't believe it!"

THE two friends must have slept. They awoke almost at the identical moment, to find themselves

lying side by side on the floor in the same positions as before. Presently a step was heard at the entrance, and an Oriental appeared suddenly with a tray of food, which he placed on the floor near them. He was gone in a flash.

"Now, how in thunder," began Fletcher, ". . . why darn it, I can *move!*" He waved his arms and sat up with difficulty. Hale followed suit. To their great astonishment, they found themselves capable of motion in the upper half of their bodies. But from the waist down they were as rigid as ever.

"That's what I call neat," vouchsafed Hale. "These beggars have a way of tying you up all at once or piecemeal."

Fletcher nodded in agreement, but was too busy attacking the tray of food to venture a word of reply. Hale promptly joined him in the assault. He realized dimly that they had not eaten since leaving Fairmount Park. Was it only a few hours ago? Was it yesterday? . . . there was no way of telling . . . it seemed like years.

While eating, they discussed their strange predicament in subdued whispers. As to where they were, who their captors might be, they had only some wild guesses. But what their mission was—that was clear to them—to learn the reasons for an unprovoked bombardment of peace-loving people—to effect a cessation of the attack, by persuasion, by diplomacy, by force if necessary—to return to their starting place as best they could. A rather large order, they agreed between themselves, but not an impossible one. Deprived of their weapons at the very start, they knew that they would have to depend upon their wits to get them through.

The shuffling of many feet now came to them through the open doorway. Two Mongolians entered. Outside in the corridor the rest of the group waited. The new visitors, evidently persons with some authority, proceeded to adjust a portable mechanism so as to focus on the prisoners seated on the floor. The two friends promptly experienced a reversal of the paralyzing force, which restored their stiffened legs to normal use, but gripped the upper portion of the trunk as in a steel vise.

The captives were assisted to their feet and led out of the cell where their escort was awaiting them.

"Bet we're being taken to the *Big Guy* himself," whispered Fletcher.

"Either that . . . or else out to face a firing squad," returned Hale grimly.

The party descended endless flights of metallic steps, and tramped through a long wide tunnel that appeared to be an underground passageway. Everywhere was the same smooth brassy construction now so familiar to Hale and Fletcher. This whole new world seemed to be constructed of one material.

At the end of the tunnel they entered a large compartment that the two friends immediately recognized as an elevator, and were whisked upward with a speed that almost took their breath away. Out into another corridor, higher and wider than the other, and at the end of that the party halted. The two leaders motioned the prisoners forward. A low buzz sounded somewhere behind the metal wall that faced them. An answering buzz sounded close at hand. The blank wall divided before them and they were led into a large chamber. Rugs, hangings, all the furnishings about the room gave the air of Oriental splendor that would be expected in the palace of an Asiatic potentate. But in the centre of the chamber stood a single piece of furniture that certainly had about it the aura of the Occident—an ordinary American office desk—made of that ubiquitous yellow metal, but otherwise unmistakable.

At the desk, and facing them, sat a solitary figure. The young men stepped forward a few paces and then stopped. At a wave from the one at the desk the escorting group bowed obsequiously and retreated from the chamber. A pair of beady brown eyes scrutinized them from head to foot. The prisoners returned the scrutiny fearlessly. They observed a Mongolian type similar to those they had already seen. Even though he was seated, they could tell that he was of short stature, thick set and stodgy. His face gave the appearance of *breadth . . .* wide, with ears standing out grotesquely from the head—a thick nose, somewhat depressed at the root—a broad mouth, with full lips—cheek bones high.

A coarse hand stroked a sparse beard. Eyes narrowed to mere slits, and thick lips widened to a grin, exposing rows of strong irregular teeth.

"So! . . . you have come! I was not expecting you so soon . . . but you are welcome nevertheless." Only a mere suggestion of foreign accent was evident in his English.

He continued his minute scrutiny. Hale was about to burst forth with some pert retort, but held his tongue for the moment. That could wait until later. Fletcher was silent too, with his eye riveted to the figure before them.

"My young friends," again began the Oriental, "do you know where you are?"

"Somewhere out in space," replied Hale, "—somewhere on another world, millions of miles away from the earth."

Their captor burst into a harsh laugh that echoed like the rolling of thunder through the room. "That's what I thought," he croaked. "Wouldn't it surprise you, my brave lads, if I were to tell you that you are still on earth—*that you have never been more than five miles from its surface?*"

The captives exchanged significant glances.

"Not out in space?" blurted Fletcher. "Then where in blazes are we?"

"You are in Lhasa—in 'Forbidden Lhasa'—the walled city of Tibet, in the heart of Asia!" The stentorian accents came like the booming of cannon to the ears of the astonished pair. They remained speechless.

"Wait—let me make you comfortable," said the Oriental hastily, "then I can tell you the whole story."

He busied himself for a moment with a device at the side of his desk. It was only then that the adventuring youths realized that they had been standing there all this while with the upper part of their body held rigid in the powerful grip of the strange paralysis.

Gradually they began to feel the rigidity melt away. Now it was gone—only a faint weakness, a sort of lassitude throughout the body, remained as a relic of the mysterious binding force. The Asiatic motioned them to a wide, curiously carved bench close at hand, and they sank down upon it wearily.

"Now, Mr.—Mr.—!" began Hale.

"Lun-Dhag," volunteered the Oriental, with a slight inclination of the massive head and broad shoulders, as though in a semblance of a bow.

"Mr. Lun-Dhag, we came here in your shell car to . . ."

"I know just why you came." A sneer entered the harsh voice. "I demanded two American chemists. You came, posing as chemists—with the intention of snooping around and interfering with my plans."

"Yes, it's true!" interjected Fletcher hotly. "You send down on us your infernal shells; you bomb us, kill our people, destroy our property—and for what? That's what we're here for—to find out why this sudden and unprovoked warfare, and to stop it, if that's humanly possible."

"A fine speech, my brave friend," smiled Lun-Dhag suavely. "I like you for your strong youthful valor—both of you. Yes, I shall admit the truth of most of your accusations. I, Lun-Dhag, have started stern hostilities against your Western world. Unprovoked? . . . well, we'll let that go unchallenged for the time being. It is true that I am sorely in need of expert chemical assistance, such as can be offered only by the best technical brains of your lands. Your people refuse to accede to my demands. They treat them lightly—they delay—they attempt to play with me—they try treacherous and underhand methods to combat me—but I am equal to them!" Lun-Dhag's voice had now grown to a shout. He glared ferociously at his listeners.

Suddenly his glance softened. His almond eyes narrowed, and his lips widened into a grin.

"I repeat," he continued softly, "I like your splendid courage in coming on such a dangerous miss on—hopeless though it is. You are not, by any means, the expert chemical brains that I expected, but you have other virtues—*that* I can see. Perhaps I can interest you in a proposition. . . ."

Lun-Dhag paused significantly and scrutinized the faces of the two before him. They remained silent, stolid. Hale could almost guess what was coming. A glance full of hidden meaning passed between the friends. Their captor went on:

"I need young men like you in my organization—men who don't know the meaning of fear—men with brains and enterprise. My offer is an unusual one, I know—but it is attractive. If you accept, then your rewards are great—rewards that are material—as well as otherwise."

"And if we don't accept?" inquired Hale.

A steely gleam flashed from Lun-Dhag's small eyes. His lips closed to a thin grim line. A clenched fist came down firmly on the shiny metallic surface of the desk.

"You know what happened to the others," he said in a low tone that was pregnant with meaning, "—the four who came before you, and whom I found useless for my needs!"

A defiant retort crowded to Hale's lips, but he choked it back. Fletcher sat staring wide-eyed at the figure of evil power that faced them.

"However," added Lun-Dhag, "I do not expect you to come to a decision at this very moment. You may think about the matter for a time. Talk it over between yourselves—make up your minds whether or not you will accept my offer. Of course, my friends, I have given you nothing but the barest idea of what I expect of you. If you agree to my proposition, then you shall know the whole story—my plan of organization—my aims and aspirations—your part in the scheme. If you decide to reject my offer, then. . . ."

Lun-Dhag grinned knowingly. He touched a button before him, and a distant buzz was heard. Presently the door through which they had entered slid silently open, and the two guards entered. Again Hale and Fletcher felt their arms and torsos encased in a relentless mold of steel. Without another word being uttered, they were led through the same succession of stairways, passages, and tunnels back to their original cell.

TIBET! . . . Asia! . . ." Fletcher paced the floor with agitation. "Of all the doggone places! . . . and we thought we were on some distant planet or something!"

Hale stood near one corner of the room in an attitude of reflection. They were now relieved entirely of the overpowering paralysis, although the guards, before leaving them to their meditation and debate, had discreetly fastened the door from without. Evidently Lun-Dhag was taking no chances.

"Tibet or Mars! . . . it makes no difference," remarked Hale. "We're in a jam, and we've got to get out of it—somehow."

The two friends fell to discussing their predicament in low whispers. They were fully aware that Lun-Dhag was too adroit a schemer to hope for complete surrender from them. They knew that at this very moment their every action and movement was being watched by unseen eyes—their words probably being recorded by unseen mechanism—perhaps their very thoughts being read and analyzed by the masterful devices of this insidious foe of mankind. Nevertheless they discussed the situation as fully as possible in hushed tones.

"If we fight back," said Hale, "then it's all up with us—we'll be returned to where we came from . . . you know how! If we agree to go through with this fellow's proposition, then we'll be comparatively safe—for a while, at least, and while there's life . . ."

Fletcher nodded.

"LET me congratulate you, young men" Lun-Dhag arose from behind his desk to his full five feet and four inches of stubbiness, and strode or rather waddled toward them eagerly. His short spindly legs could barely support his bulky body. "You have demonstrated good judgment—far better judgment than those two stubborn German chemists. Fine technical experts they were, but they turned a deaf ear to my offer. And so . . .!" A significant gesture of the hand spoke volumes. "And as for those French convicts you shipped me—brave fellows but utterly useless to my scheme. You lads, however, have common sense, initiative, leadership—qualities that I admire most. I shall assign you to posts of responsibility in Lhasa—after your preliminary period of training and instruction. You shall become familiar with the doctrines of Lamaism—the sacred religion of Tibet. You shall know to the full extent of our advances in science and technology. When our planned conquest is completed, you shall reap the benefits, along with others who are now striving and sacrificing for the common cause. But remember, I do not trust you—yet. You are still aliens, deserters from our enemy. In your minds may be thoughts and plans of evil against me and my people. Until I am sure that you are whole-heartedly with us, you shall be under careful watch every hour of the day and night. Perfidy will avail you nothing. Treachery will merit but one reward!"

Hale and Fletcher listened to the Asiatic lord in silence. If anything was in their mind, not a trace of it was reflected on their expressionless faces. Lun-Dhag.

flashed a signal to the waiting guard without. A few brief directions and the two adventurers were led away.

For the first time since their arrival here they found themselves out in the open. The escorting group of Tibetans conducted them out of the executive headquarters into a large open quadrangle bounded by rows of tall, gloomy-looking buildings. The area was alive with people, all apparently in a high state of activity, all bent on the completion of some appointed task or errand. Small and large vehicles, evidently automatic and self-propelling, coursed through the square, some empty, others bearing one or more passengers. Here the two friends were separated. Each was bundled into a different vehicle, together with a contingent of guarding Orientals. The conveyances started off in divergent directions, leaving the quadrangle by two of the narrow streets that radiated from the administration building.

"Well it's lucky they've got us bunking together at least."

Fletcher sank down on one of the couches in the room and reached for a cigarette on the table nearby. "Hm-m! . . . real Turkish brand! . . . Old man Lun-Dhag is sure kind to us."

He inhaled the fragrant smoke deeply. "This first day has been a pretty tough one," he ventured, "and yet it's been quite interesting. They've got me in some kind of munition plant out on the outskirts of the city. It has to do with manufacturing of explosives. And I can recognize one product that they're turning out almost by the ton—it's that infernal stuff they used to blow holes in the map of America and Europe. They call it *khatonite*. Why, darn 'em, I feel like . . .!"

Hale held up a warning finger, and shot a swift glance about the room. Fletcher caught the suggestion, and closed up.

"Well, Ray," remarked Hale, "I'm at a spot that's almost as interesting as yours. They put me in just the place I myself would have chosen, had they given me a chance to pick. I'm in the chief chemical laboratory of this outfit, and I've learned a lot—even though this is the first day on the job. There's one thing that I know is going to appeal to me a great deal—it's the work on that mysterious mechanism that drives and controls their projectiles. This laboratory has full charge of turning out these devices—and it's just as I had guessed—the underlying idea of the whole thing is some queer chemical action or substance. I'm anxious to learn all about it—and there's a good chance that I'm going to. The personnel is all native Tibetan, of course, but some of those in authority are somewhat familiar with English. With the help of these fellows, I expect to get on rapidly with my education."

ABOUT a week had passed, and the two alien visitors to Lhasa were beginning to become acclimated. Their work was congenial, their surroundings pleasant. During leisure hours they were permitted apparently free access to all parts of the "Forbidden City" and to the technical works about the environs. They were allowed to ask any questions they desired about various phases of this astonishing development in Central Asia. All replies were courteous to the extreme. It appeared that Lun-Dhag had paved the way for their complete acceptance into the current scheme of things. Although they did not see the high commander at all since that interview in his chamber, Hale and Fletcher could observe his influence wherever they chanced to be.

"Have you learned anything around your explosives plant about how things stand?" asked Hale one evening. They had just finished a delectable repast, and the Tibetan servant or orderly had just disappeared with the remains. They were seated near the open window, looking out upon the twinkling lights of the city lying stretched out into the valley below. Off to the left towered the massive bluff that was crowned by the impregnable palace of the "Dalai Lama"—the fountainhead of the Tibetan religion.

"To tell you the truth, Cliff," replied Fletcher, "I haven't been able to get on to very much. All I could make out is that this fellow, Lun-Dhag, is a wizard to the *nth* degree. He's organized this race of people for some evil purpose or other, and everything that's being done around here is aimed in that general direction. However, I haven't been able to get the whole story. Real authentic information is hard to dig out of these natives. Only one or two that I've met up at the plant are able or willing to tell me anything; maybe if they knew more than a smattering of English, they could make themselves understandable. But my idea is that none of them know anything—that is, no one but the few that are really in authority. The rest just obey orders without knowing what it's all about. And now how about *you*, Cliff? What have you been able to make of it over on your job?"

"I must admit," laughed Hale, "that I've been a great deal more fortunate than you in picking up information. There are a few intelligent native scientists over in the chemical works, and they aren't at all hesitant in answering questions—even in volunteering data on their own hook. Evidently they are under instructions from Lun-Dhag to go the limit with their information. I've kept my eyes open too, not only on my job, but all through the neighborhood of the city during our comings and goings. And here is the gist of what I have been able to learn:

"Lun-Dhag is a wizard—a keen, shrewd scientific genius with a remarkable capacity for inventiveness and original discovery. In ancestry, he is part Mongolian, part Tibetan. He has been educated in some of the leading universities and technical schools of America and Europe. Coming back to Asia after his period of scientific training in the West, he plunged whole-heartedly into the task of building up this God-forsaken sector of the globe. And how did he do it? By delving first into the hard rocky soil of this barren plateau and locating undreamed-of stores of mineral wealth. He discovered vast deposits of metal ores, chemical substances, and other valuable minerals, some of which are exceedingly rare in other parts of the world. And he developed sources of tremendous, almost limitless power from the chemical materials that he dug up out of the ground."

"Lun-Dhag set to work with superhuman will and energy. Here within the walls of the ancient city of Lhasa, as well as all around it, he established a huge beehive of activity, an elaborate base of operations. He schooled a few of his trusted friends and followers for positions as lieutenants in his organization. He instituted a campaign of education and training among the ignorant and superstitious natives of this region, and made willing slaves of them. And under the leadership of Lun-Dhag, this small area is the centre of the most concentrated and phenomenal advance in scientific achievement ever seen anywhere in the entire world."

"Whew! . . ." breathed Fletcher in the utmost wonder,

both at his indefatigable friend, and at the amazing array of facts that he was presenting. "I'll say you've been picking things up during this last week! What a story *that* is! . . . But Cliff, I don't understand how he was able to do all this without some news of it reaching the outside world. Surely the development of this whole project must have taken years, and yet not a word of it seems to have leaked out."

"That's easy. This land of Tibet is right in the middle of nowhere. It's a barren, mountainous plateau region, sparsely populated, rarely, if ever, visited by outsiders. It's a mysterious country, ruled by the religious superstitions that they call Lamaism. Even to this day Tibet is avoided by foreigners, because of the dangerous fanacticism of its inhabitants. So that the country is like an isolated little world, apart from the rest of the inhabited globe. That explains why Lun-Dhag and his co-workers could build up such a vast development without the slightest hint of it ever getting out of this limited area."

"But what's the idea of this whole blamed project Cliff? What has this bird, Lun-Dhag, got up his sleeve? Did you find out anything about *that?*"

"Plenty!" retorted Hale. "Lun-Dhag is aiming at world domination! Think of it, Ray, *world domination! Mastery over the entire civilized world!*"

"All by himself?"

"No. Lun-Dhag is the central figure in this scheme, but his idea is to effect a sort of 'long-distance' conquest of the rest of the earth by the forces of Lamaism situated here in Tibet. Coupled with his superhuman power as a scientist, he is a deeply religious fanatic, a devout believer in this ancient faith, which is a queer combination of Buddhism, sorcery and certain primitive Indian beliefs."

"A 'long distance' conquest, you say?"

"Yes . . . and that brings me to the ace card of Lun-Dhag and his forces of Lamaism. It's the projectile. This device of his is the very last word in ingenuity and scientific skill. First there is this alloy of which the shell itself is constructed—they call this product *thokal.* As you've already noticed, practically everything around here is made of this same metallic, substance. I haven't been given a chance to learn the composition of *thok-al* but you know how nearly indestructible it is. Then there's the driving mechanism that's housed in the nose and the tail of the projectile. And it's just as I suspected—it depends on some intricate chemical reaction that I don't understand yet. You remember, Ray, what I told you some time ago. I had the idea all along that the driving mechanism was based on some complicated chemical process. And my hunch seems to be working the right way."

"You mean that the machinery doesn't always operate correctly, and so makes the shell behave queerly?"

"Exactly! Lun-Dhag and his associates, eigther by accident or after a long process of intense chemical research, have laid their hands on some reaction or manipulation that enables them to drive their shell to any designated spot on earth at terrific speed, and then to make it take off at any desired moment and return to its starting point. By adjusting the mechanism properly, and by placing within it just the correct quantity of some mysterious chemical compound, they furnish the shell with motive power to carry it to its destination, allow for a definite time interval of rest, and then return it to its *starting point. But they don't know all that they'd like* to know about this chemical reaction, so that at times it gets beyond their control. That explains why they have had so much trouble in placing their shells at just the spots at which they were aiming. It also makes clear why they haven't always succeeded in making the shell return safely. Or, if it *does* return, to make it do so at just the correct speed and at exactly the correct time that they had calculated in advance."

"Why, Cliff, that's just the way you figured the entire matter out long before we took off on this trip. Are you sure that you have the real dope on this whole thing?"

"Positive, Ray. Those native scientists over at the laboratory are clever chaps—and mighty willing to tell me what they know about the shell and its operation. They aren't at all backward in giving me all the information that I want—or rather all that they've got. Of course, I wanted to know why the mechanism doesn't always work according to schedule, but they threw up their hands at it—they just didn't know. Lun-Dhag has been working for years to perfect this projectile so that it would do what he wanted it to do a hundred per cent of the time. With his inexhaustible supply of raw materials, his trained technical assistants, and his vast reserve of practically slave labor, he has been able to turn out hundreds of shells. These he has tested under all conditions, firing them over various ranges, observing them in action, noting their speed, where they landed how they returned and everything else about them. Finally, in spite of all efforts, Lun-Dhag had to admit that his pet idea wasn't as much of a red-hot success as he should have liked it to be."

"And so, Cliff, the rest of the story must also be just as you guessed it before—I mean their demands for American and European chemists."

"That's right. Lun-Dhag, in desperation at the way he was stumped by the accentric action of his projectiles, hit upon a bold stroke—to enlist by force the services of Western scientists to help in ironing out the wrinkles in his shell mechanism. At the same time he saw an opportunity to set his pet plan into operation, that is, his scheme for world domination. The campaign had to be launched some time, and now he could kill two birds with one stone."

"How did he figure doing that?"

"By firing his shells with those messages to send chemists, he could throw a huge scare into the people of the West, and so pave the way for the real campaign of world conquests. He thought that if he tried long enough, and made things sufficiently unpleasant for the Western countries, they would accede to his demands for technical assistance. Then, after he had eradicated the irregularities of his projectiles with the aid of these Americans and European chemists, he would be ready to launch his war of conquest in real earnest."

"I wonder how Lun-Dhag was able to check up on the exact effect of each shell when it landed in America, England, France, or wherever it came down."

"Easily enough, Ray. He has a trained corps of radio experts who are constantly listening in on short-wave channels for news from the world over. Many shells, of course, fell into the ocean or other obscure spots, and were therefore not reported. These that landed at, or near their intended destination, created plenty of excitement—you know that too well. It was a comparatively simple matter for Lun-Dhag to get accurate data, *via* news, commercial and government broadcasts, as to the *exact effect of each one of the shells.*"

"So that he must have known of the general impres-

sion that developed from the time the first one landed I mean the belief that these shells were visitors from some distant world out in space."

"To be sure he did, and this fitted in nicely with his entire scheme. The chief idea of this Tibetan dictator is to secure world control for himself and his clique, and still remain hidden away in his own mysterious country. That's what I mean by 'long distance' conquest. You see, these Tibetans are forbidden by their religion to mingle with the outside world, for that would contaminate them. By means of these trick projectiles, Lun-Dhag planned to bombard any portion of the earth at will. If the world believed that they were being attacked from somewhere in space, all the better for his plans. No one would dream of hunting for the source of trouble so close at hand as the continent of Asia. He could send his demands for the best in Western scientific skill, for the finest of treasures, if he desired them, for hostages And his reversible projectile would return to Tibet with its cargo in just as slick a manner as you please. He need not risk either his own neck or the life of a single native in this strange, one-sided war. He could wipe out a city at one stroke, terrorize an entire nation—in fact the whole civilized world—as he has succeeded in doing so well. And yet, with all that, he could remain here in absolute security, impregnable to attack, because not a soul would even dream that the source of all the fireworks was located right here in this corner of the globe. Lun-Dhag and his people may be barred by their Lama religion from mingling with the rest of humanity, but they could nevertheless maintain a ruling hand of steel even from a distance by means of their damnable shells. A mighty neat scheme, I'd call it. And one that could very easily work out, to the utter ruin of the civilized world."

"But, if Lun-Dhag's religion prohibits him or the rest of the Tibetans from coming in contact with outsiders, how do you explain his readiness to accept Western chemists to help out in perfecting the shell mechanism? And why is he so willing to enlist you and me in his organization? Wouldn't he become defiled by associating with us?"

"Well, I've been thinking about that, Ray. Lun-Dhag undoubtedly realizes that a grave emergency exists. If he cannot get his projectile device to work accurately, then his scheme for Tibetan control of the world isn't worth a darn. My theory is that he's making certain allowances for just this one time. He's probably had it all worked out to the last detail. If he received the chemists that he demanded, he would take full advantage of all the skill they could furnish him in this trying emergency. Then, after their job was completed, and there was no further use for their technical genius, and no further need for their defiling personal presence, why then . . . you can imagine the rest."

HALE was positive that he and his chum were under constant and close scrutiny. He knew that every action of theirs was being watched, and every word of conversation apprehended. It was useless to expect privacy, however much it might appear that they were being given free and untrammeled rein in their new existence in Lhasa. It was too much to expect from Lun-Dhag that he would place implicit trust in two youthful strangers from a race which he was at the very moment aiming to conquer and destroy. This unscrupulous genius had undoubtedly taken means and installed devices to insure an incessant surveillance of the two Americans, twenty-four hours a day.

Confident that such was the case, Hale might have been more cautious in his actions and more judicious in his talks with Fletcher. But he took no pains to mince his words. During the lengthy discourse together, in which Hale opened the eyes of his friend to the full significance of Lun-Dhag's drastic schemes for world conquest, as well as in all subsequent conversations along the same lines, Hale never hesitated to call a spade a spade. He was fully aware that Lun-Dhag had made it easy for him to gain all the information that he now had regarding the Tibetan plot. He knew that the Asiatic chieftain was anxious that the young adventurers should be told all. So that he had no fear about discussing the entire matter rather freely with Fletcher.

But Hale was absorbing more than Lun-Dhag was giving him credit for. In the projectile plants, the chemical works, the metallurgical establishment, and in the firing and receiving chambers Hale kept his eyes open and his senses alert. And some of the things he learned he did not confide to Fletcher, bosom friend though he was. Those details he stowed away carefully in his mind, not even trusting to written notes. When the time came, he was confident that these mental data would stand him in good stead. Meantime, although he dared not breathe a word of those matters to Fletcher, there grew up a mute and mutual understanding, whose language was nothing more than an occasional significant glance. They realized their mission—they were fully conscious of the weight of responsibility they had assumed when they launched forth in the Tibetan projectile that memorable night in Fairmount Park. And they were both motivated by a grim determination to see the adventure through just as they had planned it. Even more momentous was the task now than they had realized at the start. In the light of their present knowledge, matters were beginning to take a pretty crucial turn for the safety and welfare of the entire civilized world.

Activity in the projectile plants was going on with unabated zeal. Despite the erratic behavior of these missiles, the factories kept on turning them out by the wholesale. Many of them were tested out on special proving grounds near the city, and Hale had a good opportunity of studying the manner in which these infernal machines behaved, or misbehaved. Meantime Lun-Dhag continued to dispatch projectiles to America and Europe at regular intervals. They contained the same urgent demands for chemists. Apparently he was not at all ready to give up.

The two adventurers from the west had an ample opportunity of following these shells in their flight through the medium of radio news reports that recounted the arrival of each new missile. It was astonishing to them how many of the projectiles never reached their mark. One afternoon, in the space of several hours, no less than thirty-five huge shells were fired, each identical with the rest, each containing the self-same message in Italian, all destined for Rome. The reports that came in early in the evening told of the fall of three of them, two in the Mediterranean, and one on the island of Sicily. Whether the remainder fell unnoticed into the ocean or whether they became diverted from their course and left the gravitational field of the earth forever, neither Lun-Dhag nor the most astute of his scientists had any means of determining. Here was certainly a powerful

engine of destruction and conquest, titanic in force and capabilities, but erratic and uncertain to the very extreme.

A matter which had been puzzling both young men was cleared up on the very first occasion of their visit to the firing and receiving ground. Although the area was dotted with numerous dome-shaped buildings, each of which contained the mechanism for launching a single shell, their attention was concentrated on only one of them. There seemed to be a greater stir of activity about this particular building than was to be observed about any of the others. Hale went off to make inquiries from a Tibetan worker whom he recognized as an assistant in the central chemical works. He returned immediately to his chum with the precious information.

"They're expecting a returning projectile from South America. They've got to be on a constant lookout because there's nothing very definite, as you know, about the way it travels across or the exact time and manner of its return. But they've got wind in some way that the projectile is about due, and that accounts for the extra excitement. Let's hang around and see what happens."

As the two friends watched the proceedings from a little distance, they observed a constant scurrying about the building. A number of foremen or overseers directed the movements of several dozen natives who hustled in and out of the circular structure hauling queer bulky appliances, dragging cables, and doing other menial but obviously essential chores. High up near the top of the dome-shaped roof Fletcher pointed out to his companion a turret-like affair, in which two or three men appeared to be engaged in certain adjustments or manipulations. They were evidently in communication with those in authority on the ground, either by signal, telephone or other medium. Their perch seemed to be movable. The two youths on the ground could see it slowly shift its position within a narrow area on the curved roof, as though it were some kind of focusing device being directed at a particular spot or object.

Hale was about to inquire from some one regarding the significance of this contrivance, when he was halted by sudden cessation of that beehive activity about the building. Everybody stopped work and looked aloft. A low hum became audible above. The hum rose to a whistle, faint at first, but increasing steadily in intensity.

"It's the returning shell!" cried Fletcher, seizing his comrade's arm. "Look!—nearly overhead—and coming right for the dome!"

A pinpoint of brassy lustre grew in the sky until the unmistakable outlines of the projectile were apparent. The whistle rose to a shrill scream. The men in the turret on the roof were busying themselves with their controls. The turret swung over slightly, remained stationary for an instant, swung over a little more, came to rest finally.

Hale and Fletcher had their eyes fixed on the descending vehicle—the eyes of all on the ground were similarly directed.

Suddenly a muffled exclamation from Hale.

"It's stopped!"

And to be sure, the shimmering shell, slowly decelerating as it approached the ground, was now suspended in midair about fifty feet above the building. Its stubby nose was directly above the opening in the top of the dome. The shell had been heading true for the top of the frame structure into which it was intended to slide. And yet, there it was, motionless and unwavering, suspended rigidly between earth and sky like Mohammed's tomb.

The focusing turret on the roof moved again, as though an invisible beam was scanning the returning shell before admitting it to its final resting place.

"Why, confound it, of course!——" Hale burst forth as the solution of this vexing problem suddenly dawned upon him. "Don't you see, Ray, they've got to give it a clean bill of health before it's allowed to land. It's for their own protection. By Jove, now I can understand it all. They must have some device down in the receiving chamber that exerts a powerful counter-push on the shell and stops it in its flight just before it is to land. Then that gadget up there on the roof is brought into play and sweeps some kind of an X-ray beam across the shell while it's hanging there. I suppose they can tell immediately what it's bringing home to them—just thin air, or men from the other side of the globe, or a message, or—a charge of T. N. T."

"I see," murmured Fletcher, watching the suspended projectile in awe. "So that's why the shellful of high explosive that the British sent back did not go off. The Tibetans spotted the trick immediately, and returned a cargo of their own *khatonite* that wrecked a good portion of the English landscape."

The invisible scrutiny of the suspended missile now over, and the contents observed to be innocuous, it was permitted to settle slowly into the orifice through the roof, coming to rest in its upright cradle within. The two friends waited around just long enough to ascertain that the new arrival contained nothing of material importance—merely a note from the Brazilian government that was a curious mixture of query, stern denunciation, and cloying sweetness.

"But what I can't see, Cliff," remarked Fletcher in a puzzled tone as they strolled away from the scene, "is how we managed to get through without being given the 'once over' in this way. You remember don't you, how neatly we slipped in, without anyone knowing about our arrival for a while after we landed? Gosh, if we had been several hundred pounds of high explosive, instead of just *we*, then there would have been a different story to tell, wouldn't there?"

"I dare say," ventured Hale. "It's just an example of how this projectile scheme of Lun-Dhag's slips a cog occasionally. Something went wrong somewhere, as has been happening time and again, and our shell arrived perhaps hours ahead of time. I'll bet that Lun-Dhag was as mad as a wet hen when he got the news. A valuable portion of his layout here might have been seriously damaged if ours had been an explosive shell."

Hale and Fletcher witnessed the dispatching of shells day after day. They listened to the incessant news reports coming from the outer side of the globe, telling of the reception of the shells and the plans for reprisal. They also witnessed the return of some of them. They read the messages that come back—several peaceful and conciliatory—others couched in terms of open defiance. But what Lun-Dhag wanted most—chemists—of those there was a woeful absence.

With horrified tenseness the youthful adventurers witnessed the dispatch of shell after shell containing that deadly yellow explosive *khatonite*, more powerful than any that had ever been dreamed of in western warfare. The news of destruction of towns, the laying waste of

defenseless countryside, struck the hearts of the two friends with sickening dismay and revulsion. Lun-Dhag was continuing his program of stern reprisals with increasing intensity. Rebuff after rebuff had driven him into an attitude closely akin to frenzy. Slowly but relentlessly all the powerful forces of destruction at his command were being loosed upon an unyielding humanity.

From time to time, Hale and Fletcher heard radio flashes from America that affected them personally in a high degree. They heard their own names mentioned frequently, heard the accounts of their mad dash off in the projectile, the fantastic tales and rumors that spread immediately regarding the bold stroke of these unknown youths. Gradually the furore created by their sudden departure died down. Not a word from them for weeks, not even the return of their bodies as in the case of the others who ventured forth to a nameless fate. And so the world was giving them up for lost—martyrs in the defense of a helpless humanity against a cruel enemy from outer space. For the accepted belief was as ever, that the projectiles had their origin on some inhabited sphere of matter, millions of miles away from the earth.

THE two friends stood expectantly before the desk of the Tibetan chieftain in his sumptuously furnished chamber. Lun-Dhag sat absorbed in various written reports lying in front of him. His shaggy brows were knit in a deep scowl. Now and then a faint buzz sounded and he turned from his task to an instrument of communication at his elbow. Dark shadows swept his countenance, and his sharp retorts to some distant persons became increasingly savage.

Presently he looked up, as though he had just become aware of the pair standing silently before him. He eyed them narrowly—his visage became darker.

"I've sent for you," he began brusquely, "to let you know how things stand. You are both probably well acquainted with my plans. They have been well laid—worked out nearly to perfection—but the results are not satisfactory—and you know it!"

"We are doing our share," returned Hale, in as cool a tone as he could muster, although his chief desire at the moment was to pounce on the fiend and strangle him there as he sat. "My friend and I are contributing our best efforts—in accordance with our bargain with you."

"Yes, yes, to be sure, young men," Lun-Dhag hastened to reply in a somewhat mollifying tone. "I have no fault to find with you. I trust you both implicitly."

Hale marveled at the glibness of the lie. He wondered if the crafty Oriental really believed that they were fools enough not to see through his thin veneer of deception.

"But," continued Lun-Dhag with increasing wrath in his voice, "it's your countrymen who are to blame—your Americans and English and French over on the other side of the globe!"

Fletcher was about to burst out with a cutting retort. The idea!—to be blamed for not wishing to have yourself blown into eternity, by an explosive shell dropping on your head . . . however, he checked his tongue in time.

"If only they had complied with my demands!" Lun-Dhag went on. "I asked them to help me out in solving a technical problem that was vexing me. They could have complied easily enough, and ended the matter then and there." Hale's answer to that statement, expressed inwardly, of course, was that it would have been a mere beginning. "But what do they do instead? They send me, not scientists, but impostors! . . . Rain explosives down upon me. . . . Try to wreck my work of years. . . . And so I am compelled to return in kind—for I am not the sort of man to be trifled with . . ." The Tibetan rose from his seat and scowled menacingly at them.

The two westerners could easily have mustered up a hundred sharp answers, but they realized that to reply was useless. They could see that they were not dealing with a sane individual—that Lun-Dhag, scientific genius and shrewd schemer though he might be, was, in the last analysis, a madman, obsessed by a single idea, and bent on carrying it out at all costs, and no matter what the consequences might be.

"I have planned and worked for years," resumed the chieftain. "My associates and my people have toiled with me. Our projectile device works, as you know, but its effectiveness is spoiled at times. It is not a trustworthy machine, yet. We have striven to make it reliable, and must admit that the results are not altogether successful. I am bitter against the world—bitter against those who have ignored my requests for assistance—bitter against those who are scheming to thwart my plans. Well, my good lads, the crucial time has come. I have been holding back, waiting, delaying, and now I am going to wait no longer. The first real stroke from my hand as a gesture of my power shall be given soon . . . very soon. Then the whole world will realize its stupidity and folly in resisting me and my people. This supreme stroke that is about due will fall like a thunderbolt. In comparison with it, the former manifestations of my power will appear feeble. It will indeed be a fitting symbol of the terror that is Lun-Dhag. And, my dear friends, you and you—each of you will have a prominent part in the consummation of this project . . . the fruits of your labor will be embodied in it . . . the stamp of your efforts will be on it . . . Ha! . . . Ha! . . . Ha! how splendid a gesture! . . . How noteworthy an accomplishment! . . ."

Lun-Dhag began pacing the floor in extreme agitation, mumbling incoherently to himself, alternately scowling and leering at the astonished youths, bursting occasionally into raucous guffaws of laughter as the mystifying humor of the situation dawned upon him anew.

Hale and Fletcher deigned no reply to his insane outburst. All they could do was to eye him apprehensively in his agitated pacing up and down in the Oriental chamber. Finally, Lun-Dhag halted in front of them, massive shoulders hunched, spindly legs far apart, hands clasped behind him, beady eyes scrutinizing them through narrow slits in his leathery skin.

"You shall learn more presently!" he snapped. A gesture of the arm indicated to them that the unpleasant interview was at an end.

HALE came into their room with his face pale and drawn. Fletcher was already there, having a shorter distance to travel from the scene of his daily work than his friend. Hale dropped heavily on the couch.

"It's nearly ready," he remarked tersely.

"What is nearly ready?" queried the other sharply.

"That master stroke of Lun-Dhag's," returned his chum, "the one he was telling us about the other day. I just heard the first details of it over at the lab. this afternoon."

"And what's it all about?" breathed Fletcher eagerly.

"Simply this: Lun-Dhag has been firing projectiles now for weeks . . . some with messages, some with explosives. He cannot make the rest of the world come across. He has blown up portions of the country here and there over widely scattered regions in America and Europe. Some shells have done very little real damage. Others have fallen in areas where serious destruction have resulted, both to life and to property. All have been of comparatively small calibre, giving merely a taste of the real thing. His chemists have slaved like Trojans in an effort to correct the gross defects in the operating mechanism, with but little success. I myself can vouch for the enormity of the problem, because I've been in intimate contact with the work at the laboratory since the day we came here. And now Lun-Dhag sees no further reason to hold up his plan. Preparations are just about complete for the *big push.*"

"What do you mean, *big push?*"

"The laboratory staff has been occupied day and night for over a week in completing the driving mechanism of a super-projectile, the like of which has never been attempted before. The shell plant has practically finished this super-projectile and the operating units are to be installed in a few days. Just as soon as that's turned out in a finished form, a dozen more will be produced as fast as they can be made ready."

"And the idea back of it all . . .?"

"To commence an attack on the Western world such as has never been imagined in the wildest nightmare. The first shell, charged with several tons of *khatonite* will be aimed for New York. If it makes a direct hit, and Lun-Dhag's experts are striving manfully to turn out a shell that will do so, then half of the city will be annihilated at one awful stroke. If it doesn't land true, they are prepared to send another huge monster right on its heels . . . in fact, a whole stream of them."

Fletcher uttered a low whistle at the sheer enormity of the thing.

"And that isn't all. Plans are being pushed for a constant flood of these super-projectiles from the plants. A rain of death is being prepared for all the large centres of population on three continents, London, Paris, Berlin, Vienna, Rome, Chicago, Mexico City, Buenos Aires—all have been singled out for concentrated bombardment and immediate devastation.

"Why Cliff, that man is a—a—lunatic—a *raving maniac!* Why . . .!"

"Whatever he is, that's the situation as it stands. The conquest of the world—the utter destruction of western civilization is about to begin!"

"But, hang it all, Cliff . . . What are *we* going to do about it? You and I must . . .!"

"What *can* we do?" and Hale's voice was hollow—his face blank. "We are helpless! . . . We are nothing but slaves of Lun-Dhag—cogs in a complicated machinery! . . . The plotted destruction of the civilized globe seems to be inevitable! . . ."

Fletcher caught his breath with a jerk. He stared intently at his friend. Good Lord! . . . Were his own senses going back on him? . . . Was Hale going mad, along with the rest? . . . Was the constant association with the feverish activity of a group of frenzied scientists actually undermining the sanity of his chum? Surely this was not the proud, vigorous, indomitable Cliff who had first broached to him the notion of entering upon an extraordinary adventure into the unknown for the sake of helping a sorely stricken world.

Again Fletcher peered into the pallid features of his comrade in peril. A tense, expressionless face met his gaze. Fletcher looked long into it . . . and caught an almost imperceptible narrowing of the eye . . . an evanescent flash of an unmistakable message. For another moment he continued the stare another fleeting movement of his chum's eye, and then Fletcher fell back with a limp "Oh!" on his lips . . .

Hale was positive that they were now being watched more intently than at any time during their sojourn in Lhasa. He almost felt those unseen eyes on him wherever he was—in his room with Fletcher—at his duties in the laboratory—walking about the city or through the plant units—traveling in the automatic conveyances on this or that errand. He knew that every word that passed between his companion and himself were recorded and reproduced for eager alien ears. His fervent prayer was that Lun-Dhag and his infernal staff of diabolical scientific experts had not as well in their power the reading of his innermost thoughts. For, although his words might be taken as an indication of active cooperation with the plans of this madman genius of Tibet, or at worst, of a non-committal attitude toward the destruction and conquest of the Occidental peoples, his thoughts, it might readily be expected, were actively concerned with but one idea: To work out a way of thwarting Lun-Dhag before it was too late. He realized now, more than ever, that haste was imperative. With preparations for the impending storm of violence and death already practically completed, there was hardly a minute to lose if it was to be averted.

The following evening, Hale announced to his chum additional details of the great undertaking now in progress. He spoke glibly of dimensions—cubic capacities—weights of *khatonite*—quantities of chemical propellant for the projectile. And as they strolled through the Oriental garden surrounding their habitation, Fletcher was startled by feeling Hale's hand brush his, as though accidentally. Something was pushed into his palm—his fingers closed over it—it felt like a tiny scrap of paper . . . a message! . . . They continued walking along the lane to the house, chatting pleasantly. Fletcher dared not make an untoward move. All night the mystifying epistle lay next to his skin, almost burning a hole in it, but he feared even to touch it with his hand. The next day, secreted on his person, the note accompanied him to his task at the *khatonite* plant. There he suddenly became conscious of the increased activity about the works—a commotion and excitement that apparently had escaped his notice up to the present. He knew the cause—*tons* of *khatonite* were being turned out where only *pounds* had been required before—tons of high explosive that were to be transported in those dread super-projectiles to congested centres of population all over the world.

At about noon, Fletcher managed to cast a momentary peek at Hale's note at a time when he could disguise the act under cover of some routine operation in his task. Cryptic and mystifying, the message read:

Three days more—have plan—think it will work—no questions—obey promptly—only hope—C.

What scheme his comrade had up his sleeve, Fletcher had no means of even guessing. All he knew was that Hale could be relied upon—that whatever it was he could leave it to him . . . good old Cliff! . . .

At the evening meal, during the spirited interchange

of comments across the table, a slight but significant nod to Hale spoke his acknowledgment of the message. He had little difficulty in secreting the bit of paper in a morsel of bread ascending to his lips. He gagged slightly in attempting to swallow, had a slight flurry of coughing, but finally succeeded in downing the tell-tale scrap.

THE day of the big shot!

The entire population of Lhasa, it seemed, had turned out to witness the spectacle. A sort of holiday had been declared, so that the whole city could assemble for the ceremony that symbolized the launching in earnest of the campaign of subjugation.

When Hale and Fletcher, tense with suppressed excitement, arrived on the scene, they found several thousand Tibetans already congregated, and a constantly swelling stream pouring out from the city to add to their numbers.

The firing spot was a large open space, flanked at a good distance by the various plant buildings and laboratories of this mushroom industrial centre that had grown up just outside the ancient walls of Lhasa. In the exact middle of the open area stood the mighty super-projectile itself, housed in a gigantic framework that had been erected out here in the open expressly for this metallic monster.

"What a whopper!" was all that Fletcher could say, standing there with Hale on the slightly elevated ground at a distance from the shell.

"I have already seen it before," replied his chum grimly. "Yesterday we put the finishing touches on the chemical driving mechanism. I assisted in making the necessary adjustment for range, speed and control in flight. The projectile is ready." A steely glint flashed in Hale's eyes, and was gone in an instant.

The two friends worked their way through the restless crowds toward the immediate vicinity of the projectile. Curious glances were cast in their direction by the Orientals as they cleared a path for themselves through the throng. But the glances reflected no feeling of hostility. The two western youths were well known in this Tibetan stronghold. Their presence here had already been accepted by all as a perfectly normal phenomenon. In fact, the crowd opened up and fell away before them, so as to facilitate their progress to the centre. For, hadn't the populace been told over and over again that these young men from the Occident were the very chosen of Lun-Dhag himself—his own technical advisers and right hand men?

So that the two chums made rapid progress through the assembled multitude. Each, to himself, could not but feel the striking similarity between this occasion and those other two memorable ones when they were also worming a path through solidly packed humanity to get closer to the upright and sinister messenger from out of the unknown. Only those other shells were mere pigmies in comparison to this one. A veritable monster it was, fully forty feet high and eight to ten feet in diameter. Supported on its blunt tail by the massive pyramidal framework, it pointed its equally blunt nose directly to the skies in an attitude that might almost represent challenge and bold defiance.

Reaching the centre of things, Hale and Fletcher paused to take in the scene. An intensely dramatic spectacle presented itself to them in a vast panorama as their gaze swept the entire field of vision. In the clear space around the discharging stand, a canopied platform had been erected for the accommodation of Lun-Dhag himself, his chief advisers and technical experts, and the Lama high priests. From the immediate vicinity of the super-projectile, the ground sloped up gently in all directions to the first row of detached plant buildings and factories. This area was now black with people joyfully assembled to speed the shell on its way. Even the roofs of the various buildings were crowded with holiday-spirited onlookers. In back of the first row and at some distance up the ever-ascending slope, were other scattered buildings that were acting as observation posts for hundreds. Beyond those the ground continued to rise to the distant low ridge bounding this entire industrial establishment. Dotting the circle of higher ground, like jewels set in a vast crown, they could make out the tiny dome-shaped structures that they knew so well. These were the firing stations for the smaller shells—dozens of orifices that had spit forth hundreds of missiles aimed against the countries of the west. They themselves had witnessed the firing of innumerable projectiles from these discharging stations —some of them bearing deadly charges of *khatonite* and destined to spread havoc and death over portions of America and Europe.

But now these depots were strangely mute and inactive. No small fry today! This was the day for that big fellow down there in the valley. All the operating personnel of the firing stations had been dismissed to take part in the gala occasion below. Only a handful remained to patrol the scattered ring of structures, merely as a perfunctory task.

Hale's eyes lingered for a quivering moment upon the circle of cupolas that dotted the ridge, then turned to the canopied stand close by. Fletcher stood alongside of him, pale but resolute, not knowing what to expect, but ready at an instant's notice for whatever action might be called for.

A fanfare of trumpets sounded in the distance. The multitude set up a shout, and seemed to melt away at one point, forming a wide, clear avenue to the centre of activity. It was Lun-Dhag and the high officials of the regime, together with the religious heads of the community. They approached with regal splendor, borne in a fleet of vehicles that slowly and noiselessly descended the gradual slope leading to the projectile, with the elaborately decorated platform nearby.

The caravan halted at the inner rim of the crowd. Lun-Dhag and his immediate advisers emerged from the first vehicle, the largest and most ornate of the fleet. He was outfitted in gorgeous Oriental robes, soft in texture and vivid in colors. But splendid though the garments were, they failed to lend any great amount of regal splendor to his dwarf-like, pot-bellied, spider-legged person. He waddled to his place on the dais, followed by his entourage. A hush fell upon the vast assemblage. The ceremonies were about to begin.

The "Dalai Lama," the High Priest of all Lamaism now stepped forward—a majestic figure in flowing silken robes, with a stern visage of yellow-brown hue and a long white beard. He raised his hands to the multitude, and uttered a slow and measured incantation. In sing-song fashion, the lesser priests about him echoed his words. A low wailing chant broke out over the assembled throng, which swelled out to a mournful cry like the plaint of a million lost souls. The sound rose and fell in wave fashion, now a long protracted howl, now a faint quivering moan. Then it died out completely.

Lun-Dhag arose from his seat under the varicolored canopy, and addressed the throng in a rapid-fire discharge of verbiage that fairly crackled through the air. He gesticulated vigorously to punctuate his invective, frequently bringing his arms up in a majestic sweep to indicate the massive projectile towering over the heads of all. Bursts of wild acclaim interrupted him frequently. The crowd waved bits of colored cloth and shouted their approval at his words. A frenzied climax of Oriental oratory brought his speech to a close amid a torrential roar of commendation from the densely packed Tibetan citizenry.

Instead of resuming his seat, Lun-Dhag now turned to the two American adventurers and addressed them personally in English. His tone was earnest, his words commendatory—almost flattering. They had both done their work well—their assistance at the duties assigned to them had been invaluable.

"Both of you, my good lads," he announced, "have amply justified the great faith that I have placed in you from the very start. Your work has been difficult, but it has been crowned with genuine success. In your assistance at the chemical plant and at the *khatonite* factory, you have rendered an invaluable service to the cause. *There* stands the product that you and all of us have labored so hard and so long to complete. It is now ready for its important journey—with a message to all the world that the forces of ancient Lamaism are to rule the world—that Lun-Dhag is supreme!"

The two friends bowed stiffly in acknowledgement of the chieftain's personal tribute to them, at the same time realizing, all too well, the crafty duplicity of this demented genius. But they had to go through with the mock ceremony.

The prayers, chanting and speech-making were now over. The next order of business was the projectile. A restless stirring fluttered through the assemblage. An air of suppressed excitement pervaded the entire scene. Lun-Dhag stepped down from the platform. The groups of Tibetan technicians and scientists made way for him as he approached the edge of the scaffolding that supported the insensate, metallic demon. He turned and beckoned to Hale.

"Come, son," he said with unctuous softness, while a cruel gleam twinkled in his dark little eyes . . . "Come . . . you shall have the honor . . ." He indicated a control panel fastened to the horizontal beam nearest the ground.

Hale responded like an automaton. He felt as though he were in a hypnotic trance as he slowly approached the fatal panel. Times beyond recording he had seen that lone switch, smaller than this one before him now, but just as deadly in its action. Times without number almost, he had he watched it swing true with a sickening click. And each time a swift messenger of doom had slid upward through the well lubricated framework and sped forth on its errand of terrorization or destruction.

"Come, come! . . . why do you hesitate? . . . This is a signal honor for you! . . ."

The smooth words seemed to pierce his eardrums and stab into his brain with seering flashes of fire. He reached forward blindly, seized the handle of the switch, and swung it over savagely. An instant of breathless suspense, and then an awesome *"Ah!"* from the motionless mass of humanity. The titanic superprojectile became galvanized into action as though suddenly imbued with life. As easily and smoothly as though it were a mere toy, it lifted its huge bulk and swept upward between the vertical supports. It was gaining speed . . . faster still . . . it was now entirely clear of the runway! . . . A tremendous roar burst forth from the multitude—the sound splashed back from the walls of the encircling buildings behind the crowd and reverberated through the valley like the mighty beat of a thousand giant waterfalls. Arms waved excitedly, colored kerchiefs flew wildly in the breeze, Oriental throats shouted themselves hoarse, trumpets and drums added their raucous din to the deafening cacophony. And meantime the gargantuan missile sailed serenely aloft. In a few moments it was completely out of sight—but the pandemonium continued with no sign of abatement.

In the din and excitement, Fletcher suddenly found Hale back at his side—and underneath the apparently serene exterior, he sensed a caldron of agitation in his chum.

"Now!" breathed Hale into his ear.

He turned and made his way through the excited groups clustered around the scaffolding. Fletcher was close beside him. Others were circulating about the open area, laughing, shaking hands, conversing shrilly, making merry in general. Consequently the movements of the two failed to attract any undue attention. With as nonchalant an air as they could muster under such tense circumstances, they worked their way, Hale slightly in advance, to where the group of official vehicles were parked.

When they were almost there, Hale's hand brushed Fletcher's and the latter felt a cold, hard, slender object. His fingers closed over it. He recognized it, without even looking down. A portable paralyzer! How well he knew this deadly instrument. How often he had witnessed its lightning effectiveness as a weapon! Hadn't they themselves been subjected to its somewhat milder influences on the very first day of their visit to Lhasa? But how had his friend accomplished the impossible, How had he managed to procure two paralyzers?—a slight bulge in Hale's pocket indicated that he was similarly armed—and how had he succeeded in keeping them concealed while under such minute surveillance? But this was no time for idle conjectures. Action now . . . and plenty of it! . . . Fletcher's blood thrilled at the thought.

"This way; . . . Quick . . . in here!" Hale's terse words came from between clenched teeth. "Now . . . *up!!*"

He bolted suddenly into one of the smaller cars. Fletcher was with him in a flash, crouching low in the vehicle. Hale fingered the controls and the car lunged forward. Straight for the cleared corridor it made, while Tibetan officials, scientists and assorted onlookers scattered in dismay. A few luckless individuals were not quick enough to comprehend the situation. A sickening thud or two, accompanied by a sudden lurching of the car, told of their fate.

The hilarious noisemaking and jubilation became stilled for a palpitating instant, and then a roar of anger swelled up—an ominous burst of consternation and frenzy. Looking back, Fletcher could see a form of pandemonium raging now that was obviously different from the previous variety. Lun-Dhag and his entire entourage were running about in apparently insane agitation. Commands, wild gesticulations, shaking of fists,

wailing, scampering in all directions. A few of the Tibetan technicians were working feverishly at the controls on the metallic firing frame, which had so recently housed the super-projectile. Others were tugging desperately at a bulky apparatus near the outer rim of the cleared circle. Figures were piling into the remaining cars to take up the pursuit of the two foreign youths.

"We're making for the ridge up there!" panted Hale. "It's our only chance!" He peered ahead eagerly as their tiny vehicle bounced over the rough ground. They were ascending the gentle slope leading up from the firing area, and had by this time covered more than half of the ever-widening lane that ran through the closely packed Oriental spectators. The vehicle was now almost at the first row of plant buildings that bounded the area.

"Firing Station No. 34, Ray!" breathed Hale, by way of explanation. "The one with the pinkish dome up there! . . . that's where we're heading! . . . There's a shell waiting for us there . . . It's all set for the trip back home . . . adjusted to land somewhere in the West . . . Frisco, I think! . . .They never got around to firing it . . . been here for days . . . Everybody concentrating on the big fellow down the hill, there," with a jerk of his thumb in the direction from which they were now racing. "But I've fixed that big fellow *plenty!*" His pale lips set in a grim line.

They had now cleared the last of the astonished crowds and were jostling over the uneven terrain up toward the encircling ridge. Plant buildings, factory units, laboratories fled by them as they plunged onward toward Firing Station No. 34.

Fletcher, keeping a lookout behind, could see that an organized chase had commenced. One after another the pursuing vehicles came into view, dashing madly in the wake of the fleeing car. Behind this fleet came a horde of Tibetans on foot crowding each other furiously in the wild surge up the slope.

"They're gaining on us!" cried Fletcher. "That big car—the one belonging to Lun-Dhag! . . . it's in the lead Cliff . . . and coming on us fast!"

Hale bent to his controls. Their tiny vehicle struggled manfully up the rising ground, but was no match for the powerful monster coming on relentlessly from behind.

Fletcher reached over the side of their car and pressed the thumb button on his paralyzer tube. Evidently there was no effect. The onrushing juggernaut continued to shorten the distance between them. And now it was almost upon them, roaring and snorting like a terrible demon of destruction. And now it was right alongside. The fleeing youths caught a glimpse of several pairs of evil Oriental eyes. Both of them fired their weapons point blank into the pursuing car. Was their aim defective? Were there weapons innocuous? Were these Tibetans possessed of a certain immunity against the paralyzing ray? At any rate, the occupants of the other car continued to leer at them mockingly.

The pursuers were now half a length ahead of the fleeing youths. "They're going to cut us off!" shouted Hale. "Hold tight!"

Suddenly the larger vehicle swerved sharply to the right. Wheel locked with wheel. A crunching, grinding, tearing sound . . . The light car was spun about violently and deposited half over on its side. The other, with speed unslackened, skidded in the same direction, struck a large rock, careened crazily, and in one sickening instant crashed over and over, coming to rest bottom up in a tangled mass of twisted metal at a little distance from the first.

Hale and Fletcher, dazed from the shock of the impact, and painfully bruised, but otherwise unhurt, scrambled from their own wreckage, weapons still in hand. Three broken figures were just visible underneath the overturned car. Hale noticed in a flash that Lun-Dahg was not among them—though the vehicle was his.

As the two friends sprang to their feet and dashed up the slope the second of the pursuing cars came along and plunged with almost undiminished speed into the wreckage. The others drove up rapidly, some swerving sharply and grinding to a halt nearby, others, unable to stop in time and joining the furious tangle created by the first crash. But the escaping pair did not wait to ascertain the full extent of the catastrophe. They were running up the rising ground toward the row of firing stations, now only a few hundred feet ahead. An occasional glimpse over their shoulders revealed swarms of Orientals scrambling from the stalled vehicles to join the horde of pursuers that had come up from behind on foot.

"Just a little more!" panted Hale. "Look out . . . for the . . . guards!"

Now they were on level ground again. Before them stood the pink-domed structure—Station No. 34. Suddenly a figure came running from around the side of the building. Another was right behind him. The guard! . . . Two of the handful of men left to keep watch on the firing stations during the gala ceremonies below. They had been attracted by the tumult and confusion attending the mad pursuit up the hill. Now they stood there in petrified astonishment, their sluggish Oriental brains trying to grasp the extraordinary situation.

"Let 'em have it!" and Hale punctuated his cry by a vicious stab with his paralyzer. The first of the Tibetans crumpled up and lay rigidly still. Almost at the same instant Fletcher let loose his ray to catch the other amidships and curl him up with neatness and dispatch.

Wheeling quickly, they now came almost face to face with the panting vanguard of the pursuing mob. A lightning lunge of the deadly weapon in the hands of the youthful adventurers swept a dozen of the nearest ones relentlessly to the ground. The less fleet of foot were still some distance from the top of the ridge.

A lightning glance down the slope to the scene of the firing ceremony revealed utmost confusion. Tiny figures were working frantically to draw up various pieces of bulky apparatus and bring them into position at the base of the metallic runway. The mass of humanity crowded together in the surrounding area was in the wildest panic imaginable. And even at that distance Hale caught a glimpse of the gorgeously regal garment of Lun-Dagh, who was dashing furiously here and there, showing that the mad genius of the Tibetans was bending all efforts to get some order or system out of this chaos.

All this the two on the ridge absorbed in one instantaneous glance like the flash of a photographic shutter. Then: "Come on, Ray . . . Station 34! . . ." The two ran for the open doorway of the dome-shaped structure. Just as they reached it, a shrill, faraway screech assailed their ears. It seemed to come from nowhere, and yet it was all about them, and growing louder.

They stopped in their tracks. The pursuing figures, now just reaching the top of the ridge, slowed down, halted in dismay, and gazed upward, about them, and down to the seething turmoil below. The shrill, whining shriek was growing stronger and more piercing with each passing second. It vibrated through the consciousness of the two chums with a penetrating fierceness.

"It worked! . . . *God, it worked!* . . .

Hale's scream echoed in his friend's ear and momentarily drowned out that other awful sound. Hale was now jumping up and down like one possessed. "The shell! . . . the super-shell! . . . *it's coming back!* . . . We can't lose a minute! . . . Hurry! . . . Hurry!!"

Almost seizing his friend bodily, he dragged him through the entrance of the building and slammed the sliding door tightly shut in the face of the foremost pursuer. The projectile, with panel open wide, was stationed there in its supporting cradle, ready for their flight. They clambered up the framework.

"Get in!" panted Hale. "It's not as comfortable as the one that brought us here . . . but it'll do. We may feel the bumps more . . . there's no padding, you see . . . was meant for a load of *khatonite*. But there's one thing about it . . . it will float! I saw to that when I helped build it—so if we come down on water . . . we'll have an even chance!"

Fletcher was by this time inside the dark interior of the projectile. He reached out for his comrade.

"Wait!" called Hale. "Grab that panel, Ray! . . . and hold it tight! . . . Don't let go! . . ."

Standing within the cramped chamber, Fletcher grasped the sliding door with both hands, bracing himself firmly against the metallic walls of the shell. Outside the station, he could still hear that horrible shriek. It penetrated the walls of the building; its eerie vibration was enough to strike terror to the very heart. At the barricaded door of the structure, a confused clamor could be heard—shouting, thunderous hammering as of heavy instruments.

Hale, still out on the scaffold, reached down to the vitalizing control switch, and swung it over viciously. Then, as his companion struggled desperately with the sliding panel, he straightened up and dove into the compartment.

He was scarcely inside, when a terrific concussion shook the universe about them. Like a cataclysmic earthquake it rocked the shell, the metal frame work, the floor and walls and domed ceiling of the structure. The accompanying roar of sound beat down upon them like an overwhelming torrent. At the very instant of the terrific blast Fletcher's fingers loosened their grip and the projectile panel tore itself shut. The vehicle quivered and strained, and seemed to the dazed occupants to be turning end over end. They felt themselves being battered about as the missile lurched now this way, now that . . .

Crash! Human skulls meeting hard unpadded metallic walls . . . Piercing flashes of light! . . . stars! constellations! entire galaxies! . . . overwhelming pain! . . . *oblivion!* . . .

"ANOTHER one of those damned things, sir. Came down *plunk!* . . . just like that, about a half-mile astern. Disappeared out of sight with a big splash, sir, and came right up to the surface again immediately."

The commanding officer knit his brows. He had orders to bring his cruiser, the U. S. *Iriquois*, unit of the Pacific Fleet, to San Pedro harbor under forced draft. He was now less than thirty miles from his destination, and making good time. But he recognized his obvious duty, in the face of orders to the contrary. The menace of the falling projectile was of paramount moment at this time.

The vessel was put about. Yes, there was the slender, metallic shell, floating half above the water, its conical tip pointing off at an angle. One of the forward guns was made ready. A single shot would do the trick . . .

But wait! . . . This projectile seemed to be different from the rest. It certainly was not behaving like all the others that had fallen either on land or on sea during the past few months of world-wide terror. If it had behaved like most of the rest it would have detonated with great violence the instant it struck. But there it was, bobbing lazily about on the waves, apparently as unconcerned and as harmless as a buoy.

Followed a hasty council of war and then a boat was lowered. With the captain aboard, it was cautiously taken in the direction of the enigmatic object. A few judicious circlings, and then the boat drew closer.

Hullo! . . . What was that? . . . The doorway or panel was open, and with every rise and fall of the floating projectile a quantity of sea water was splashing into the interior.

Closer and closer . . . the captain reached out, seized the smooth edge of the doorway, and peered in. An exclamation of astonishment escaped him. Two crumpled figures lay huddled together inside.

"My God! They've sent them back! . . . those two young fellows who went off a couple of months ago in one of these things . . . now they're back! But wait! . . . they're not dead! Look . . . they're breathing! . . . Quick men, lend a hand! . . ."

The cold water splashing into the shell had begun to have its effects on the two battered figures lying limply inside. Hale half opened his eyes, looked about him and into the earnest faces peering down into his, and wearily closed them again. Fletcher stirred painfully and uttered a slight moan.

Tenderly the two semiconscious forms were lifted from the shell and deposited in the bottom of the boat.

"Well, Ray . . . that's the end . . . of Lun-Dhag . . . and his dream—of world power . . ." Hale's eyelids fluttered feebly and opened again. He felt for his friend's arm near his, and squeezed it affectionately.

Fletcher smiled weakly. "Lun-Dhag . . . Lhasa . . . Station 34 . . . all gone! . . ."

A few moments of silence, and then Fletcher asked feebly: "Say—Cliff, how did you—turn the—trick?"

"Easy!" was Hale's weak response. "I monkeyed with the . . . chemical charge in that big fellow . . . Don't know how I got away with it . . . Adjusted the gadgets in the driving unit . . . to make the super-shell go on—a short distance out . . . and then turn around . . . and come back . . . *and it worked!*"

The men in the boat exchanged knowing glances and shook their heads sadly. Fletcher turned about painfully and smiled into the face of his friend.

The rhythmic splashing of the waves, against the bow of the boat, was music to overwrought nerves. Hale closed his eyes and sighed contentedly, as though satisfied with a job well done.

THE END

The Finger of the Past

By Miles J. Breuer, M.D.

TRUST Dr. Breuer to give us something "different." "The Finger of the Past" is unquestionably an entertaining bit of scientific fiction, but even more than that it is highly provocative of serious thought and is worthy of much consideration.

Illustrated by MOREY

WALDO SWIFT, dapper young salesman of *"Palaeoscopes, Inc.,"* shifted his necktie infinitesimally into the position of utmost nicety, squared back his shoulders, and then picked up his little black case from beside the elevator door and stepped briskly and energetically toward Herodias Buffum's office. And indeed, the prospect upon whom he was about to call was regarded among salesmen as a tough nut to crack. He had been known to eject salesmen physically into the outer corridor. Therefore, Waldo Swift, in spite of the confidence he had in the appeal of the marvelous and astonishing invention he was "distributing," gathered together all the courage he had before he opened the door.

He found himself in the luxuriously furnished reception-room belonging to the executive offices of *The Radionic Remedies Company,* located on the 127th floor of *The Manufacturers' Building.* There were two other doors in addition to the one by which he had entered. Beyond one of them was the faint hum of typewriting machines, while the other, which bore the name of "Herodias Buffum, President," was slightly ajar. As Swift let his eyes rove about the room taking in first one elegant object and then another, he could not help hearing clearly the sounds that came from Buffum's office.

A distant door closed faintly, and a tinkling voice said:

"Good morning, sir!"

It was Miss Peacheline Fairchild, the stenographer, who glided efficiently into the room, even before Buffum had ceased jabbing the button on his desk.

"We've got a lot of work today," Buffum said deep down in his throat. "Starting on something new."

Miss Fairchild was already sitting with notebook ready and pencil poised. Buffum was walking about the room, hands clasped behind his back, his eyes on the ceiling.

"Whew!" he exclaimed. "A quarter of a million dollars to a country doctor for a prescription on a little card. What do you think of that, Miss Fairchild?"

"Yes sir," replied Miss Fairchild respectfully, with downcast eyes.

"Well," continued Buffum, "it was worth it. That little card is going to save our business. Did you know that *The Radionic Remedies* was just about on the rocks?"

By way of reply, Miss Fairchild gazed at him with large, sympathetic eyes. Buffum continued:

"The patent-medicine business is getting difficult. People don't fall for stuff like they used to. Our rejuvenation idea has gone stale in spite of our wonderful publicity department, and we're going into the hole. I've about worried myself nuts for a new idea."

Miss Fairchild was studying him carefully, trying to decide whether or not he was dictating, and whether or not she ought to be putting this all down. Finally she decided that it was not dictation, and nodded sympathetically. Buffum went on:

"Then comes along old Doc Cranbury with his prescription for a thought-stimulating tincture—God knows everybody needs it nowadays. Let's see: *Buffum's Brain Builder!* No. That's weak. Well, we'll get a name. The first thing is to get the whole organization to work on it. Take this, Miss Fairchild: Ahem! Ah-hrrr! —Wait. Let's have a look at the prescription first."

He started toward the wall, into which a heavy safe-door was let, when a mellow bell pealed softly. For just then, in the outer office, Waldo Swift had discovered the button marked: "Visitors Please Ring."

Buffum kept backing away, while Miss Fairchild continued to cling to him. Everyone else in the room was tremendously embarrassed except Oliver. Suddenly, all eyes turned toward the window, whence a loud whirr proceeded.

"Hell!" said Buffum. He turned to Miss Fairchild: "Bring him in and we'll have it over before we begin."

He eyed Swift's black case, as the latter entered the private office, while Swift's eye traveled about the still more luxuriously furnished room. It was certainly modern, with its television screen, its photophonic beam projector, the huge keyboard for controlling the distant factory from the downtown office, the helicopter landing-stage outside the window sill. There were luxurious rugs and richly finished furniture; and amidst it all, Buffum glowered at the square black case in Waldo Swift's hand.

"What the hell do you want?" he demanded.

Waldo Swift had a pleasant, cheery tone of voice.

"This remarkable machine will astonish you. Tremendous value in your business, entertaining in your leisure hours——"

"I can't be bothered now," growled Buffum.

"Just go right on working, sir," Waldo Swift said deferentially. "I shall not interrupt."

He set his case on the floor, opened it, took out a complicated and delicate-looking piece of mechanism, and began setting it up.

"Just pay no attention to me for the moment," he said to Buffum. "As soon as I am ready I shall ask you to look at the screen for a couple of seconds."

But Buffum could not keep his eyes off the shiny, clicking little mechanism.

"What is the damned thing?" he asked.

Waldo Swift, working deftly with the apparatus, replied:

"This is the famous *Palaeoscope*. You can connect it with any person, scene, or object, and it will project a true and faithful animated picture of what happened to that person or at that place, at any past time that you may designate."

Buffum snorted.

"A bunch of boloney. You're wasting my time. I'm busy."

Swift never even noticed the discourtesy.

"I'm connecting it with your desk. What time shall we choose? Say this time yesterday. All right. Here goes!"

At first Buffum started suddenly, half rose out of his chair, and a few inarticulate gurgles escaped him. However, in an instant, Swift had moved a lever on the machine. It whirred and flickered, and on the screen appeared Buffum's desk, at which was seated Buffum together with an old, gray-whiskered man. The latter gravely handed over to Buffum a small card in exchange for an elaborately executed check. Buffum was then seen to walk over to the safe and elaborately put away and lock up in it the newly acquired card.

"That's far enough!" Buffum said sharply. He was evidently nervous. "Stop the thing."

Swift shut off the machine at once.

"Now," he said, "I shall be pleased to leave this model here with you for you to try out. I'll see you again this afternoon."

"I'll look it over," growled Buffum. "I might get one for the office-boy's Christmas-present."

"After you've seen what it will do, sir," Swift said briskly, "you will want to order a hundred machines for your advertising department."

"Arrh!" snorted Buffum. "Quit blowing smoke-rings. You're wasting my time. I'm busy. All right, Miss Fairchild. Ready? Take this."

"Good day, sir," said Swift in the exit door. "I'll see you later."

"Hrrrumph! Damn nuisance," growled Buffum. "All right. Let's see, where was I? Oh, yes. We need the prescription of old Doc Cranbury's brain-tickler."

He got up out of his chair and walked to the safe again. Twirling the knobs, he swung open the door and reached in. His face became blank. He leaned in and searched frantically around. He became rigid. He tossed things back and forth in the safe.

"It's gone!" he screamed. "Help! Police! It's stolen!"

After a moment he quieted down, and walked about and groaned.

"I'm ruined!" he gasped, dropping into a chair. "The prescription is gone. The business is a wreck. Miss Fairchild, call the police."

SUDDENLY his eyes alighted on the *Palaeoscope* standing on a little table.

"Aha!" he cried. "If that pesticating contraption is any good, we'll find out what has become of that prescription. Never mind the police, Miss Fairchild."

Miss Fairchild dropped the telephone suddenly. She seemed unusually agitated. Buffum fumbled around the delicate mechanism for some time before he found the proper way to set and start it; but fortunately his hurried and clumsy efforts did it no harm. After several false starts it began to flicker and whirr smoothly and steadily. On the screen appeared a picture of the safe in the wall, darkened as though it were night. A young man entered by the door that led from the main office, twirled the knobs, and opened the doors of the safe. Buffum watched him in the picture in breathless fascination.

"Ho! ho!" he cried suddenly as the face of the young man on the screen turned fully around for a front view. "So it's Oliver! My precious nephew! The police, Miss Fairchild."

Miss Fairchild scurried to the telephone and began dialing a number, while Buffum viciously jabbed the button on his desk, and then paced up and down the room snarling to himself. In a moment the door opened and a young man walked in. He seemed to be possessed of no particular personality nor distinctive appearance. He was just a nice young man, like thousands we see constantly on the street, near, well-mannered, well-groomed, clever-looking.

"Now," said Buffum icily, standing and regarding the young man with a cold eye. "Hand over the prescription. I can prove that you've got it; so come on and quit acting innocent."

"Whassa big idea, guvnor?" the young man said calmly, evidently thoroughly accustomed to Buffum's eccentric outbursts. "Are you having a movie made?"

"Give me that prescription at once!" Buffum snarled angrily. "Or you go to jail. In fact, you'll probably go anyhow."

"Prescription for what?" asked Oliver with youthful sarcasm. "Keeping your temper and making your meaning clear? All right, I'll sit down and write you out a good one."

He took out his fountain-pen and began unscrewing the cap. Buffum became all the more enraged at this.

"Damn you, you're making me sore!" he shouted. "I can prove that you came in here last night, opened the

safe, and took a prescription out. Now deny it."

Oliver shrugged his shoulders.

"I came in last night," he said, "and put away some important papers. But your twitter about a prescription leaves me cold."

The outer door slammed and there was a trample of feet in the reception-room. As the bell sounded, Miss Fairchild opened the door, and three policemen entered, looking around in bewilderment. Buffum stalked up to them.

"I charge this man," he shouted, swinging his arm toward Oliver, "with having opened my safe and taken a valuable document."

"Hm," said one of the policemen, with chevrons on his arm; "that's Mr. Mayflower, your nephew, isn't it?"

"What difference does that make?" roared Buffum. "Take him away and lock him up. I'll appear to charge him formally."

The policemen acceded deferentially to the demands of so powerful and wealthy a man as Buffum. Yet they were sorry for Oliver, and handled him as gently as possible. Oliver had a half-amused, half-cynical expression on his face, and said not a word. He only looked inquiringly at Miss Fairchild, and when he had gotten her eye, glanced toward Buffum and tapped his forehead. Miss Fairchild's face remained set and immovable; nothing could be read from it.

"The ungrateful whelp," Buffum continued to growl after the policemen had led Oliver out. "After I'd set him up in life! Miss Fairchild, we've got to get the prescription from him somehow, or the business is ruined. It can't be—a big firm like the *Radionic*—ruined! Miss Fairchild, we've got to get that prescription from him."

Miss Fairchild shrank into a corner and nodded dumbly; she wrung her hands as Buffum raved on.

"We'll have him searched at the station; then we'll go through his room. But I'm afraid. I'm afraid that the rapscallion has hidden that little card pretty thoroughly. Oh, what shall we do, Miss Fairchild? We can't let this business go on the rocks, and I've worried myself sick for months trying to think of something original. Oh, the young scoundrel! A quarter of a million dollars! I could choke him with my bare hands!"

Miss Fairchild shivered, probably at the thought of Oliver being choked with Buffum's bare hands. At this moment, the outer door was flung open as though some powerful force had burst it in, and a regal looking lady entered. Through a scornful lorgnette, and from behind the magnificence of a heap of furs, Mrs. Regina Mayflower regarded her brother sternly.

"Herodias!" she said in a voice such as one uses to call a child to account. "What's this I hear about Oliver?"

"The young rascal!" Buffum spluttered. "The scamp! Stole my prescription. Whole business depends on it. Won't give it back."

"Stole it!" Disdain, supreme disdain radiated from her words and from her whole attitude. The Mayflowers didn't steal, and she knew it.

"Sneaked in at night, and took it out of the safe," Buffum stormed.

"Yes?" Mrs. Mayflower intoned contemptuously.

"I can prove it," Buffum defended himself desperately.

"Ha! ha!" tinkled Mrs. Mayflower's laugh. "He can prove it!"

Buffum, still growling: "The scamp! The wretch!" went to the *Palaeoscope*, took a good preliminary look at it, and began to fumble with it. In a moment it began to click, and suggestive shapes flickered across the screen, and disappeared tantalizingly. Buffum growled something to himself and continued to fumble with the apparatus. Mrs. Mayflower had noted something suspicious about the figures that had swiftly misted over the scene.

"Herodias!" she demanded. "What was that?"

"Hrrrrumph!" said Buffum. "What was what?"

"Put that picture on again!" ordered Mrs. Mayflower sternly. "What were you and that stenographer doing on that picture?"

Suddenly, as Buffum kept trying levers and buttons on the machine, the mechanism began to run smoothly, and the screen lit up brightly. Again it showed the safe, this time partly darkened, as though at twilight. Miss Peacheline Fairchild slipped stealthily into the room, her dim figure quite recognizable on the screen. She looked about her carefully, and then went to the safe, opened it, searched about; and took out a card that was plainly recognizable in the picture as Dr. Cranbury's prescription. This she put carefully into her handbag, closed the safe, and hurried out.

Buffum's mouth worked up and down in silence, like that of a fish out of the water. Then he began to splutter and choke with rage.

"You—you—you——" he turned to Miss Fairchild, but could get nothing more coherent out of himself. He seized the terrified girl by the arm and shook her. Finally, his wits and words came back.

"Regina! Quick!" he exclaimed. "Call back those policemen with Oliver. No! Not the telephone. The photophonic projector. You can pick them up as they go down the street."

Mrs. Mayflower responded with alacrity. She sent the powerful beam of light out of the window with the photophonic projector. Through the telescopic sights on the instrument she picked up the policemen leading Oliver, far down in the depths of the street. She swung it about until the spot of light enveloped them, and then spoke into the mouthpiece.

"Just a moment!" she cried. "Mr. Buffum wants you back up in his office. He now has evidence that Oliver did not take the prescription, and he has the real thief here."

She watched as the tiny group far down below swung about and started back. Then she shut off the instrument and swept haughtily back into the room. She disdained even to look at Miss Fairchild, but sat down in Buffum's luxurious armchair. Miss Fairchild fidgeted in an embarrassed way at a corner of the desk, while Buffum paced up and down.

"Where is it?" he spluttered when he had regained his composure a little. "Give it to me! I'll strangle you!"

MISS FAIRCHILD, however, maintained a stubborn silence, and Buffum decided that it would be best to await the arrival of the police. It was not long before their steps were heard down the hall, and, together with Oliver, they entered. Oliver nodded and smiled as he glanced about the room, taking in the various elements of the scene and comprehending their significance. Then he bowed to his mother in playful deference.

"Officers!" said Buffum pompously, "I've found the real thief. I was mistaken about Mr. Mayflower. Release him and arrest this—this—this—young woman. I'll fix up all the formalities later. Now, Miss Fairchild, will you give up that prescription?"

Miss Fairchild only smiled at Buffum and shook her head. She went up to Buffum and whispered something in his ear. His face went blank; he opened his mouth as though to say something; then suddenly caught himself and stopped, and looked belligerently about the room. He clenched his fists and crooked his elbows.

"Now, Herodias!" demanded Mrs. Mayflower. "What *is* all of this? What did that hussy say to you? Tell me at once!"

"Damn foolishness!" muttered Buffum under his breath.

"Shall I tell?" asked Miss Fairchild, smiling archly at Buffum.

"You'd better!" said Mrs. Mayflower, "if you know what's good for you." Sternness filled the atmosphere about her.

"Give up that prescription!" repeated Buffum desperately.

Miss Fairchild stepped in front of him.

"You've promised me a new fur coat," she said, "and you've been putting me off——"

"What's that?" exclaimed Mrs. Mayflower horrified.

In the meanwhile, Oliver had been attracted by the fascinating complicatedness of the *Palaeoscope*, and was tinkering with its buttons and levers. Suddenly it began to flicker and then went on clicking steadily. The screen cleared, and on it appeared a picture of Buffum holding Miss Fairchild on his lap and chucking her under the chin. Mrs. Mayflower was petrified with astonishment, and Buffum was for the moment paralyzed. Miss Fairchild giggled hysterically.

Suddenly a crash resounded through the room, and the picture suddenly went out. Buffum had kicked the machine across the room. It lay in a far corner, a tangled wreck, and from it came little sparks and lights and clicks and whirrs, which finally died down to silence.

"Search her handbag!" Buffum commanded the policemen, following it up with a lot of incoherent growlings.

A policeman stepped over to reach for Miss Fairchild's handbag; but she was the quicker of the two. She opened her handbag, took out the prescription, and held it up so that Buffum could see it.

"Here it is!" she exclaimed.

Then she suddenly crumpled it up, put it in her mouth, chewed it up and swallowed it. She laughed out in triumph; but in the middle her laugh broke, and she burst into tears. Two policemen seized her, one from each side.

Buffum turned pale, and sank into a chair with a groan, his head down in his hands. He dropped there for a moment, and then got up and walked swiftly about, with incoherent growlings. He shook his fists and clutched his hands in the direction of Miss Fairchild.

Miss Fairchild broke away from the two policemen, ran up to Buffum, and threw her arms about his neck. Mrs. Mayflower shrieked and gasped.

"You used to be so nice to me!" Miss Fairchild wept on Buffum's shoulder. "I can't stand this."

Buffum kept backing away, while Miss Fairchild continued to cling to him. Everyone else in the room was tremendously embarrassed except Oliver. Suddenly, all eyes turned toward the window, whence a loud whirr proceeded. A little flivver helicopter slowly descended on the landing-stage. Out of it climbed the dapper Waldo Swift and stepped into the room through the window, carrying a little black case. He looked about him at the group in mild surprise, as though it were after all a part of his day's work.

"How do you do, ladies and gentlemen?" he said briskly.

Buffum turned on him angrily.

"This is all your fault!" he roared.

"Yes sir!" said Swift. "Anything is possible sir."

He looked over the occupants of the room, and turned to Oliver, who looked to him the most hopeful.

"The little lady here," volunteered Oliver, "er—ah—destroyed a very valuable document. The continued prosperity of this firm depends upon that document. The company is therefore ruined. Swallowed it, see?"

Swift smiled in sudden comprehension.

"Ah!" he said. "And you need the document. So very simple."

He looked about the room, noted the wreck of the *Palaeoscope* in the corner without the least quiver in his composure, and opened his black case. He took out an exact duplicate of the first macihne, and for a few minutes was busied in setting it up.

"We'll set the time back to the same hour as before," he observed as he worked, "with you and the old doctor at the desk."

In a moment Buffum and Dr. Cranbury appeared on the screen, bending over the prescription. Swift manipulated things on the machine, and the view appeared to come closer and grow larger, until it became a close-up of the prescription only, with every letter clear and plane. Swift had out his notebook and was rapidly copying down the prescription. As Buffum in the picture put the prescription into the safe, Swift shut off the machine. Then he tore the page out of his notebook on which the prescription was copied, and handed it to Buffum with a flourishing bow.

"There you are sir," he said. "Your prescription. This is just a trifling example of the service which the *Palaeoscope* can render you in your business and everyday life. May I put you down for a hundred machines?" he concluded, taking out his order book.

Buffum grasped eagerly at the copy of the prescription, and put it in his wallet with a sigh of relief.

"Make out an order for 500 machines," he said, 250 for our research department, and 250 for our publicity department. Come back in six weeks for another order."

He went over to his desk and bustled busily among a lot of papers; obviously to hide his confusion at the fact that Miss Fairchild was weeping convulsively in one corner. Oliver did the gentlemanly thing, and went over and patted her shoulder in sympathy. He bent over and spoke something low and soft in the effort to console her.

As soon as Buffum saw this, he leaped up and whirled around; he hurried over to Miss Fairchild, brushed Oliver aside, and motioned the policemen away.

"Now Miss—" he began; "now Peacheline, you go over to Kirsch and Baum's and pick you out any kind

(*Continued on page* 733)

Slowly the elongated globe came nearer. It was of very peculiar construction. Its main body was an almost perfect sphere about ten or fifteen feet in circumference.

The Man Who Lived Twice

By William Kober

IN the words of the sage—"there is much to be said on both sides" of the question of the advisability of successfully penetrating into the future. There are very good reasons for and against such procedure, but just the same it would be a decidedly interesting experience—and perhaps a little too exciting for comfort. Much might happen, and does in this excellent science fiction story by our new author.

Illustrated by MOREY

IT WAS a job I drifted into gradually, slowly discarding my regular duties as physicist at the Bureau of Standards until they were completely displaced. Ever since the beginning of the war, the government had been deluged with plans of new guns, new explosives, rocket designs, death rays; inventions that ranged from the most wildly impossible fancies to suggestions of great practical importance. These latter were rare enough, Heaven knows, but in the more and more desperate situation of our country, no chance, however small, could be neglected.

So, in one way or another, I became the head of a little "crank suggestion department" devoted exclusively to examining the thousands of odd contraptions offered for the salvation of the country by patriotic, but not always quite sane inventors.

I still believe I must have been singularly fortunate, for from that stream of nightmare fantasies, in the course of only six months, came the two great inventions that were making it possible for us to meet the overwhelming power of the European Consolidation on even terms. The Bureau and I, undeservedly of course, got the lion's share of the credit for these accomplishments.

That describes well enough the situation that led me into what must be the strangest adventure ever experienced by any man. Yes, the strangest, for I have already died once, and since I am now alive, will die again, even if I do not return to that other world to fight once more for the secret of power.

There will never be a formal report of my experiences. I am certain that, if I handed one in, my superiors would form an unshakable conviction that some of the more lurid specimens of my departmental correspondence, combined with a nightmare or two, were the basis for it. However, I feel it necessary to put the thing in writing while it is still fresh in my mind, lest I also begin to believe that it never really happened. Then, also, according to Professor Dane's half humorous advice, when I go again, I will need a reliable account of my movements, so that I won't run into myself. For, as he remarked with a broad grin, "That would be very, very embarrassing."

But this is far ahead of my story. It all started in this way:

One day my crank mail brought me a bulky envelope. When opened, it proved to contain about twenty closely spaced typewritten sheets and drawings, and the following remarkable letter:

> "I have a machine capable of transmitting objects into the future. A short, inadequate description accompanies this letter. If you can bring yourself to believe that I am not hopelessly insane, I wish you would come to inspect it. I am badly in need of help, both scientific and financial, and from your reputation and position, know you can supply both.
>
> "I want to emphasize the fact that the machine, even in its present state of development, is certain to be of incalculable aid to our country in the present war."
>
> (Signed) P. G. DANE.

Somehow, this letter impressed me favorably, even though I could not imagine how a "machine capable of transmitting objects into the future" could become a destructive weapon of warfare. I turned to the rest

of the missive, hoping that it would not consist of the usual concoction of incorrect science and fantastic nonsense.

When I had finished, I was not sure whether it was nonsense or not. Here is a digest of the contents:

Dane first gave an account of himself, mainly, as he said, to show that he ought to know what he was talking about. He had been a professor of physics at one of the larger universities for about twenty years. During and before this time, he had ceaselessly experimented upon atomic construction, trying to find a way to release the tremendous stores of sub-atomic energy present in all matter. In this he had been unsuccessful.

In the course of his work, however, he had discovered a means of generating a gravity field of peculiar construction. This consisted of a central sphere of no gravity, and outside of that, a region of inward radial attraction. This field did not obey the usual inverse square law, but was instead almost constant between an inner sphere of no attraction and an outer sphere at which the force was cut off abruptly. The radius of the inner sphere and the thickness of the gravitational shell could be set at any convenient value by suitable adjustment.

At this point I came very close to putting the thing aside in disgust. This man must be an idiot. In these times, working upon atomic disintegration has taken the place of the old perpetual motion search, as an amusement for fools. All the prominent physicists have pronounced it impossible.

About the only thing that could be more nearly impossible, if one can compare the relative impossibilities of things that are quite impossible, would be the creating of an artificial gravitational field. And this Professor Dane had worked with the one, and actually claimed to have produced the other!

I continued to read, mainly to see what other extravagant claims he would make. But as I read, I began to revise my early estimate of Dane's scientific knowledge. The rest of the document took up the problem of the generation of the gravitational field, and gave a solution for the power required, gravitational potential, and time retardation. His reasoning and mathematics were brilliant, but conservative and correct. After he had solved a few problems that had baffled the scientists of the world for a century, and with which I was familiar enough to realize that the solutions were right, I began to wonder whether Dane might not possibly be the only one of us in step with the truth.

When I had finished, there was no longer any doubt in my mind. I would visit Dane in his laboratory, and see whether he could make good his promise to give me an actual demonstration of the gravity field and its time effect. I also made up my mind to find out why Dane believed that atomic power was obtainable.

Visiting Dane was not the simple matter it would have been before the war. The enemy considered me personally responsible for the stopping of their early victorious march, and my movements were watched. There had been several attempts to kill me.

As it was, two courses were open—to go alone and secretly or to arrange for a heavy guard during my visit. Both methods entailed risks.

If I took a guard, the enemy would almost certainly get word of my activities, for a number of recent incidents seemed to indicate that an appreciable fraction of our army was composed of enemy spies. The laboratory would then become a rendezvous for the most talented of the enemy intelligence, and they would hinder our work, or perhaps even obtain Dane's secret, always provided there was anything in this time machine business.

On the other hand, if I went alone, the laboratory would be unprotected, and if spies did succeed in tracing me, they could easily dispose of Dane and myself, and examine our equipment at leisure.

The risks balanced up about evenly, but I finally decided in favor of solitary secrecy. As a measure of precaution, I did not notify Dane of my coming, but I was sure that, with the explicit directions he had given in his letter, there would be no difficulty in locating the abandoned farmhouse near the Niagara Falls in which he had set up his laboratory. My plan was to fly from the Capitol, located in Saint Louis after the burning of Washington, direct to Dane's laboratory. The start was to be made when the moon, lacking about four days from the full, set that night.

Meanwhile, I did some figuring upon the time effect of a field such as Dane claimed to create. The fundamental principle of this effect is of course well known. Fifty years before, when Einstein first proposed his theory of general relativity, he predicted, from the theory, that time upon the surface of the sun, a point of high gravitational potential, was slower than time in fieldless space or at a point of lesser gravitational potential, such as the surface of the earth. This proposition, being readily amenable to practical test, was definitely verified by a series of spectroscopic test* made between 1919 and 1928, and was one of the practical proofs of the truth of the theory.

One point admitted of no dispute—if Dane could generate a field of sufficient strength he could slow time inside the field to any desired fraction of the normal time outside. By placing a living creature in this region of retarded time, this creature, living and aging only a day, would find, upon emerging, a world that had aged thousands of years. This time travel could present no paradox, for it would be in the strictest sense actually possible, and the workings of a natural law cannot be paradoxical.

However, this sort of time travel could not be very useful, unless one preferred to spend the remainder of his life in the far future. There would be no way of getting information back from the future to the present, because the process was not one that could be reversed, but operated strictly in one direction only. Yet it was plain enough that whatever Dane had worked out must be reversible. That was certainly the only sort of time machine that could be of use in the present.

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* To prove that time is slower at one point than at another, it is only necessary to take two identical clocks, place one at each of the points, and notice whether there is any difference in the rates. Now one of the most accurate clocks known is the sodium atom, which when excited, gives off electro-magnetic waves at a frequency of 509.3 million million (5.093×10^{14}) vibrations per second. Every sodium atom, no matter where it comes from, or what its state of temperature, pressure, or other physical condition, provided only that the sodium be present as a vapor, radiates a vibration of exactly this frequency.

It is therefore merely necessary to compose the frequencies of sodium atoms upon the earth with that of those upon the sun, sodium vapor being plentiful in the chromosphere of that body. This comparison is easily made by means of a spectroscope.

Actual test shews that the rate of vibration is slightly slower for the solar atom than for that upon the earth. The only possible explanation is that time is slower upon the sun than it is upon the earth, and that all processes, including the oscillation of the sodium electrons, take place more slowly.

A graphical explanation of this phenomenon that is not far from the real truth is the following: Suppose time to have some of the attributes of a physical body. Then, one can picture events occurring upon the sun as being retarded in their outward flight by the opposition of the inward force of the sun's gravitational field, just as any material body trying to escape from the sun would be retarded.

Dane Demonstrates

THIS question still puzzled me when I left in a government rocket ship after moon-set that night. I had taken more than ordinary precaution, and was sure that it would be impossible to trace me. No human being except myself knew where I was going; even my official superiors would not know until morning that I had left on another of my indefinitely prolonged investigations.

I rose to about twenty-five miles, and travelling rapidly, found myself over Dane's farmhouse just as the sun was rising.

The place was one of the abandoned farmhouses common in that region. In the early part of the war, before the discovery of the detector ray* put a stop to it, raiding rocket ships had frequently been able to slip over our lines from the enemy stronghold in upper New York State. The entire region had been quickly evacuated, and even now, that the danger was past, few cared to return.

As I brought my plane down, I realized how well chosen the place was. It filled all of Dane's requirements perfectly. It cost nothing, an important consideration for Dane's lean pocketbook, was lonely enough to afford the necessary secrecy and yet easily accessible from several large cities for equipment and supplies; and best of all, was close to the power lines that carried the twenty million odd kilowatts generated at the Niagara plant.

The great Falls of Niagara, but a few years before one of the wonders of the world, were now only a trickle of water when rainfall was exceptionally heavy. But for the wonder of the mighty waterfall had been substituted the greater wonder of the world's largest power plant. Fifteen two million kilowatt turbine generator units spun unceasingly in great chambers hollowed out of the rock face at the foot of the Falls. Monster flumes, cut through the solid rock, supplied them with all the water that had once fallen over the lip of the falls, to spend its precious energy in noise and turbulence.

This was our supply of energy, and great though it was, Dane and I were soon to find it pitifully meager to supply our needs.

I landed upon a level space between a large frame farmhouse of the colonial type and a tremendous, strongly built, barn-like structure. Dane, attracted by the roar of the rockets, was waiting for me as I stepped out. He was the most pleased human I had ever seen, and gave me an effusive greeting.

Dane lived in a few rooms of the farmhouse with the colored housekeeper and cook that had cared for his bachelor lodgings since his appointment to professorship. In her capacity of cook, this worthy had a substantial breakfast ready, to which I did full justice, since I had been up since two o'clock that morning. As we ate, Dane talked enthusiastically about the coming experiment, and I had a good opportunity to study the man who claimed to have done the impossible.

Physically, there was nothing impressive about Dane. He was of average size and weight, about fifty, and could easily have been mistaken for some underpaid clerk, with shoulders somewhat rounded from years of bending over a desk. In his face, however, there was ample indication of the tremendous mental powers I was soon to find that he possessed. He had the exceptionally high and broad forehead that physiognomists call the indication of a powerful and logical mind. His blue eyes, set far apart, normally showed a calm good humor, but could sparkle with intense animation when he was excited.

Great men are popularly supposed to be very dignified. This may be true enough of the general run of successful business men or politicians, in whose cases surface show of superiority is more important than the real thing. Dane was certainly not dignified. His enthusiasms, as at the solving of a knotty equation, were as intense and unrestrained as those of a child. He combined the warm, variable temperament and quick perception of an artist with an incredibly patient, plodding persistence that could keep him pounding away at the same problem year after year.

I liked him from the beginning, and I believe he also liked me. This must have been so, because instead of an initial period of feeling me out before he trusted me completely, he immediately plunged into the heart of the time-machine's theory.

He first described the method of generating the gravitational field. The principle was so simple, and followed so logically from facts that had been widely known as early as 1950, that I felt thoroughly ashamed of myself. I and the rest of the scientific world were a choice collection of puddingheads; what we had so positively called impossible had been right under our noses for over twenty years.

When Professor Dane had finished his hearty laugh at my obvious discomfiture, I asked him about that other problem—of getting information from the future back to the present time.

"Come along," he said, "I'll run off the experiment for you now, and you can see for yourself. Seeing's believing, you know. But seriously, I am not sure that I know just why it works the way it does, although I have a theory that seems to fit all the facts." And he would say no more about it, telling me that he would look forward to discussing that question further when I had seen the experiment.

As we walked toward the barn in which the equipment for the experiment was set up, the Professor happened to glance toward the point where his improvised but elaborately insulated power leads left the three hundred foot towers of the main line from Niagara. He grinned broadly, and turning to me remarked, "They'll be looking for another arc-over or ground in a few hours." I stared blankly for a moment, and then the solution of a mystery that had puzzled us at the Standards Bureau dawned upon me.

Only a part of the power output of the Niagara station was used for lighting, power, etc. The remainder of the available power was used in making various synthetic compounds and special explosives. The direct power and lighting requirements fluctuated between wide limits, and was always given the preference over the less pressing demands of the synthesizing plants.

Now, four times in the last month, at periods when the direct demand was about one quarter the output, a load that slowly raised this demand to full power had unexpectedly come on. A checkup showed that none of the usual consumers had taken more than the normal amount of current during this period. Investigation of the lined proved it quite intact, with no trace of an arc or ground that might have been responsible. Some blamed the whole thing upon spies working to damage the line, but if this were the case, why should they have repaired whatever damage they did after only a few hours of trouble making?

* One of the inventions made through my "crank suggestion bureau."

BUT it was a mystery no longer. Professor Dane, who could not have paid one third of the $60,000 worth of power consumed in one of his experiments, had merely "borrowed" the power, feeling morally justified in so doing by the knowledge that it was for the good of the country. For the sake of secrecy, Dane and I decided that today's experiment would also be left a mystery, for the time being, at least.

We now entered the barn. It had a high ceilinged, capacious interior, being at least 100 feet square and giving a clear headroom of about 30 feet.

The floor was in a state of clutter and mess that would have been a discredit to a burnt-down junk warehouse. Huge transformers, mercury switches, oil circuit breakers and other parts were scattered more or less haphazardly about, propped up and braced by pieces of ill-assorted iron and lumber until one was tempted to believe that the whole business had fallen through the roof. These pieces of equipment were connected and interconnected by a crazy maze of conductors of all sizes and conditions, some running on the floor, some on stilts, and some suspended by ropes and insulators from the ceiling.

Near the center of this mess, and jarring heavily upon the general motif by a display of carefully arranged symmetry, stood three vertical cylindrical structures, about five feet in diameter and ten feet high, which had been accurately placed so that each occupied one vertex of an equilateral triangle about thirty feet on a side. The space inside this triangle was quite clear of the maze of wire that covered the rest of the floor, and in the very center of the triangle stood a sturdy adjustable tripod, upon which a thick walled glass sphere about three feet in diameter sparkled lustrously.

We dodged and stumbled our way over the intervening tangle to get a closer view of the three cylinders, which were obviously the heart of the apparatus. They were made of an opaque, glasslike substance, and Dane explained that they were giant vacuum tubes, each generating and directing a beam of radiation toward the center point between the tanks, where the glass globe was supported. Inside of the glass globe, which was highly evacuated, a tiny pith ball was suspended upon an almost invisible quartz thread so that it hung at the very center of the globe. The apparatus was so adjusted that the field would be formed around the pith ball and inside of the walls of the globe.

"It is absolutely necessary to provide a high vacuum in the region where the field is formed," explained Dane, "for if the field were formed in air, air molecules would constantly be falling into the outer surface of the field. They would immediately be accelerated by the almost inconceivable force there present, and hurled into the inner core at a velocity approaching that of light. Any object in the inner core would be riddled and blasted —instantly raised to a temperature surpassing that of the central core of a giant star."

The professor then led me back to where a wooden observation platform stood slightly behind and above one of the cylindrical vacuum tubes. The rear of the platform was occupied by a neat though intricate switchboard, where all the indicating meters were mounted, and from which all the equipment on the floor could be operated by remote control.

On the front of the platform, two powerful telescopes were mounted. Looking through one, I found that it showed the pith ball in the center of the evacuated globe outlined against a brightly lit white background placed on the other side of the triangle of tubes specially for that purpose.

Looking up again, I saw the professor surveying the horrible tangle of equipment on the floor below with the greatest of pride. "I put that together all alone, with no help whatsoever. What do you think of it?" he exulted.

"Wonderful!" I lied; then, truthfully enough, "I never saw anything like it before."

The professor eyed me suspiciously, but by dint of great effort I managed to keep my face straight.

"It may look slightly untidy," he conceded generously, "but everything is placed in its best position, electrically speaking." And he proceeded to explain the workings of the entire equipment in detail; it was really quite simple when one understood the underlying principle.

This finished, the professor again turned to the board, trembling with eagerness. The experiment was about to begin! Needless to say, by this time I had forgotten that I had ever doubted the possibility of performing such an experiment, yet I was quite as excited as Dane.

The professor placed his finger on the first of a row of tiny switches on the control board. With his characteristic wide grin he said, "Here goes the beginning of another $60,000 arc-over. Watch the power meter."

He flipped the switch in. From the floor came a clattering thump as a monster mercury switch made circuit. The power meter jumped to an indication of four million kilowatts. Nothing further happened. At short intervals, to give the Niagara station an opportunity to meet the demand, Dane threw in more of the switches, until the meter needle trembled at sixteen million kilowatts. Over twenty million horsepower was now rushing into the apparatus, but there was no noticeable effect. Everything remained quiet.

We moved to the telescopes and stared at the globe and its tiny pith ball. For a few minutes nothing happened to that, either. Then, the hazy outlines of a sphere of grayish darkness appeared, almost filling the globe. Its outer regions were indistinct, but near the pith ball, a definite darkening was noticeable. For the first time I saw that the suspending filament had been torn, and that the pith ball, with most of the quartz still attached, was suspended without apparent support, still in the center of the sphere. It was resting upon the inner limit of the force field as solidly as if upon a material body.

Slowly, the darkness thickened. I alternately stared through my telescope and fidgeted about on the platform as the slow minutes passed. The professor had abandoned his telescope entirely, and was so busy taking records of the readings of the various instruments that he had no time to talk.

Gradually the pith ball disappeared in that globe of deepening darkness; finally it became quite invisible. It was nearing the three hour point since the first application of power.

Suddenly, Dane cried, "Watch closely now—it will happen any minute!" and rushed to his telescope. I glued my eye still more firmly to the eyepiece of mine.

Then, with a soul wracking snap, that was sensed rather than heard or felt, the darkness suddenly vanished, and there was the pith ball again, quite unchanged. It appeared in its old position at the center of the containing globe, hung there for a moment, and then fell to the bottom of the same globe.

From a switch close to his telescope, the professor had

shut off the power as soon as the end came. But the experiment was not yet over.

Dane abandoned his telescope, and began manipulating a slide rule with frenzied speed. After about half an hour of steady work he finished, glanced at the chronometer on the switchboard, and relaxed for the first time since the beginning of the experiment. He waved aside my questions, saying with a smile, "You will understand in less than fifteen minutes." In a few minutes he was on the move again. He descended from the platform, went to the tripod supporting the glass globe, and removed the globe, placing it on the floor. Then he moved the tripod to one side, and over the spot where it had stood he placed, of all things, an ordinary pillow.

He came back to the top of the platform, smiling when he saw my face, which must have clearly shown my complete mystification. He glanced at the chronometer again, and busied himself in reviewing the calculations he had made some time before. Soon he motioned me back to my telescope, and went to his own.

Again came that queer snap that was not a sound, but suggested to some indescribable sense the release of an intolerable strain in the space where the field had been formed. Simultaneously something small and round appeared out of empty space in the same position that the pith ball had occupied during the experiment. For a moment it hung motionless, then flashed out of the field of my telescope.

We scrambled down from the platform and made for the pillow. Dane pointed at its center. There, upon the white surface, lay a pith ball identical in size and shape with the one I had so long studied through the telescope. Attached to the pith ball was a length of broken thread. And then I understood.

Preparations

OVER our belated luncheon we discussed the results of the experiment.

Professor Dane had the sheets upon which he had kept the record of the experiment, and the two pith balls. "You see," he said, "that the results are exactly those indicated by the Einstein theory, until just before the field disappears. At this point, the potential of the field becomes equivalent to the velocity of light. and the theory breaks down. It is up to us to develop a theory that does account for what happens. Of course, the one fact that *must* be explained is the apparent reduplication of the pith ball. This is my explanation:

"When the field vanishes, the time in its core has been slowed down to zero, as is shown by these figures," and he tapped the papers. "Timeless space is naturally not amenable to the laws of ordinary space-time. As far as we can tell by our instruments or senses, it *does not exist*. But for the same reason, it is omnipresent—it exists in all the future as well as in the present.

"But this timeless space is apparently not stable—is incapable of existing for any length of ordinary time. As it cannot hold together, it breaks down, appearing as ordinary space-time in two different times.

"It may seem strange that it does not merely appear in space-time at one particular time co-ordinate. But if it did this, the energy of the field—that $60,000 worth—would have disappeared without a trace. This would mean the violation of the fundamental law of the universe—the conservation of energy.* From the energy point of view, the energy of the field is spent in creating new matter; either the first or the second pith ball, there is no way of telling which.

"As confirmation for this theory, I have the powerful evidence that a straightforward mathematical development, according to this explanation, gives the correct results for field-energy input and the time co-ordinate interval between the two pith balls."

For a week following, I worked on the mathematical and philosophical reasoning behind this theory. And at the end of that time I was able to comprehend the greatest implication of all. If the theory were right, the second pith ball—the one that appeared later—actually existed *before* the first, and if it remained until the end of the universe, it would still, at the very end of time, be existing before that first pith ball.

This seems incomprehensible—mad—but the cold, infallible logic of mathematics stated that, if the premises of Dane's theory were correct, then this unbelievable statement *must* also be true. And we could see nothing wrong in the premises.

Not being supermen, neither Dane nor I could ever understand all the implications of this astounding result. As far as they concerned the practical business of time travel, however, we were able to work out, at the cost of many a headache, the following very interesting facts:

A living creature in place of the pith ball would not only appear at two times—one at the present, the other in the future—but its present self would *remember* all the experiences of that future reduplication upon the instant of its reappearance after the field had vanished at the end of the experiment. No physical changes, however, could be transmitted from the earlier future life to the present one. The practical importance of this action, if it really took place—a thing of which we could by no means be sure—need not be enlarged upon. All the achievements of the future were within our reach.

From our viewpoint as scientists, these practical benefits were of minor importance when compared to the tremendous fact that here we had information that gave us a new insight into the nature of the universe. Dane believed that the universe was made up of recurring identical cycles, and this theory was capable of explaining most of the facts, including that all important equation, though this explanation was by no means simple. I myself have another explanation.

In spite of all distractions I still remembered that my real object in coming to inspect Professor Dane's invention was the possible discovery of a new weapon of warfare. If the time theory were correct, the possibilities were tremendous. It was very likely that in the future, technical development would continue to advance. Thus, if one of us went into the future, he would not only add an extra lifetime to his experiences, but could reproduce the inventions of that future time when he reappeared in the present.

The entire business was very strange. Perhaps the most bizarre aspect of all was the possibility of living an unlimited number of lives in the future, and remembering all the incidents of each. Dane, quick as usual to seize upon the humorous side of a situation, remarked that it was quite likely that one, who went into his gravity field, would not only live an extra life, but find out all about the spirit world, and eventually help to increase its teeming billions by at least a pair of identical ghosts.

Truth to tell, neither Dane nor I could fully credit the correctness of the time theory, even though there seemed

* Matter is considered a form of energy.

no flaw in the logic that went straight from the results of the experiment to the final conclusion. We agreed that it could not be taken very seriously until we had actual proof.

Everything pointed in one direction—one of us would have to take the place of the pith ball in an actual experiment.

Unfortunately, the time of the second appearance would be far in the future. The time co-ordinated interval, between the two breakdown space-times, depended mainly upon the factor $\left(\frac{\text{mass}}{\text{power}}\right)$ The maximum power available would be the full power of the Niagara plant—from sixteen to thirty million kilowatts, depending upon the rainfall. The mass would be that of Dane or myself *plus* about one hundred pounds for food and equipment. For the almost weightless pith ball, the time interval had been about three quarters of an hour. For one of us, it would be in the neighborhood of six thousand years.

This would probably make it impossible to find out what the result of our present war would be; in fact, to find out anything whatever about the good old year of 1973.

When we were discussing this point, the professor remarked that in six thousand years someone should have discovered a method of releasing sub-atomic energy. I immediately asked him why he considered this a possible source of energy, when all the scientists were agreed that atomic energy was forever fixed and unreleasable. The atomic configurations of matter (with the exception of the radioactive elements) were believed too far stable to be disturbed by any attainable forces, and therefore must remain in their present states through all infinity.

Professor Dane smiled at this. "There's no real logic in that," he stated. "Nobody has any idea of what the stability of an element, say of sulphur, really is, and neither has anyone any idea of the magnitude of the greatest obtainable force. The conclusion, that atomic power is unreleasable, comes from nothing more definite than the fact that in less than seventy-five years of blundering attempts, no one has succeeded in releasing it. But energy is there, in staggering amounts, no one can deny that. And that is enough for me. I find no need to justify my twenty years of failure by shouting that the thing is impossible."

I had to admit the validity of this argument, and we agreed that if one of us arrived successfully into the future, his first step would be to find out whether a way of utilizing a sub-atomic energy was known. If this were the case, it would be advisable to neglect everything else and devote all efforts toward getting hold of this method.

Both Dane and I realized that the greatest obstacle to technical advance was lack of power. Our present industrial development is the outgrowth of just one thing—the steam engine—whose discovery for the first time in all the ages gave the world cheap power. In the same way, the vastly cheaper and more concentrated energy of the atom would make possible far greater advances. For one, travel through interplanetary space, an impossibility with present fuels, would become very simple. As for weapons of warfare, the only thing lacking toward the perfection of any number of destructive rays was the power required to supply them. A heat ray, for instance, is nothing but plain brute power.

We often spoke of the conditions we were likely to meet if this source of power had been discovered in that future age. Dane believed that the secret would be jealously guarded by one government, or even by one person. In any case, a curious investigator would be in great danger. However, if Dane's theory of his gravity machine were correct, in our future reduplication we could afford to take chances—he stood to lose only the value of the energy he represented, and the government would pay for that.

Naturally, we realized the tremendous responsibilities that would descend upon our shoulders if we did succeed in getting that secret. But we had troubles enough without borrowing more, about something that might never happen. And, if they did have atomic energy in that future age, they would also have had experiences with its political and social dangers that would prove a useful guide to the proper disposal of the secret by Dane and myself.

Into the Future

I NEED not go into our preparations in any great detail. Professor Dane's original equipment was capable of handling the full power available. It was only necessary to adjust the three vacuum tubes so that the gravity shell would have an inner region of no force about eight feet in diameter, which made the outer diameter of the shell something over twelve feet. To provide the required surrounding vacuum, a thick walled glass globe about eighteen feet in diameter was obtained and was suitably mounted. As the total power required for the building-up of the field around the passenger and equipment was roughly three hundred billion kilowatt hours, I had to negotiate, though with every effort to maintain secrecy, for a three months' call on an average of half the Niagara output.

Although the gravity field would have to be built up over a period of about three months; to the man on the inside this time would seem only about five or six days, since the latter parts would be accomplished with the time ratio at a very low value. Toward the very end, a day in the outside world would be merely a second in the core of the field.

With all the uncertainties of an untried machine and an unproven theory, the trip would be a very risky one. An accident to one of the projecting vacuum tubes or a leak in the surrounding evacuated globe would finish the passenger in a blaze of glory. Even if all went well, there was no telling what might happen to the passenger if the professor's time theory was wrong. As it was the only thing we had to go on, we made all our preparations on the assumption that the theory was correct.

Even on this basis there was at least one danger, which could not be avoided—the landing in the future. Our equations told us that the two space-time breakdowns—one in the future, one in the present—would take place at exactly the same point on the earth's surface. The "present" appearance could be prepared for easily enough. In the future, however, the ground level might have risen or fallen considerably, as the earth writhed slowly in the grip of geologic time. Our calculations indicated that there would be no danger of materializing underground, or inside of some solid object, for the region of timeless space would drive away all matter that tried to invade it, acting as an immovable body of infinite hardness. If, therefore, the ground rose in the intervening six thousand years, the passenger would find himself at the bottom of a rather wide depression in the earth's surface, and quite safe. If, in that time, man

tried to erect a wall, or nature a tree, through the region of timeless space, they would encounter an invisible but impenetrable barrier. Yet, one danger remained. If the ground receded, there would be a nasty drop that might easily prove fatal. We could think of no way of avoiding this, for the fall would be too short for a parachute to be useful. However, geologic indications were that the ground in our region had very little motion, up or down, so that there would probably be no trouble. And so we had to leave it.

Both Dane and I were determined to have the honor of being the first passenger. Dane claimed it by right of having invented the machine in the first place, but I had equally persuasive arguments. Both of us could not go, as one would have to stay behind to take charge of the complicated manipulations and to be on hand in case of an emergency. We finally settled the identity of the passenger by tossing a coin. I won.

Finally the day came to start the experiment. For the previous week, I had done very little except sleep, with the aim of being well rested for the six day ordeal in the gravity shell.

Our arrangement of the globe was quite simple, even makeshift, but left nothing to be desired from the point of view of efficiency. A circular hole about three feet in diameter had been left in the giant globe when it was manufactured. It was well below the middle of the globe, to afford a comfortable entrance. I climbed through it and found myself in the interior. Professor Dane, standing on the outside, now handed in the stuff that would accompany me on my journey into the future. This included food and water, the air conditioning equipment, a few books and a battery and lamp to read them by, and a number of cushions. These latter were included because the interior of an eight foot sphere is not exactly the most comfortable shape for a bed.

This stuff inside, the professor and I shook hands through the port. He grinned and said, "Have a good time in 8,000 A. D. Good bye and good luck." A final grip, and he lifted the patch section into place and began welding it to the globe.

The welding finished, Dane went to the control board and turned a very little power into the tubes, forming a weak gravity shell. Ducking low to avoid the lower surface of the field, I lifted item after item of the equipment into its influence. Each in turn felt the attraction of the field and was drawn up into the central portion.

When the last object had "fallen upward" out of my hands, I rose to full height and was pulled up also, the sensation being very much like that of a swimmer coming to the surface after a dive.

The equipment and I continued to bounce up and down for some time, for the gravity field furnished a perfectly elastic floor, and the bouncing did not stop until the air resistance had damped it out.

While I was still bouncing energetically, rising temperature and pain in my eardrums informed me that the air pressure was going up. Most of the air in the giant containing-globe was being compressed into the eight foot interior of the shell by the inward driving force of the gravity field.

In the wall of the globe was an exhausting nipple. Dane now started the vacuum pump connected to this, reducing the pressure in the outer region, between the outer surface of the gravity field and the globe, to practically zero. The field was not quite strong enough to prevent air from its interior from leaking slowly out into this region, and finally I was able to signal that the pressure around me was slightly less than normal atmospheric. This regulation of pressure was very necessary, for when the shell disappeared, I would be projected into the atmosphere of the world of 8,000 A. D. If the initial high pressure of the air around me were not reduced, the sudden drop in pressure might easily tear my lungs and burst me like a toy balloon. A slight insufficiency of pressure was the safest possible disposition.

By this time I had subsided in a tangle of oxygen cylinders, cushions, and boxes at the bottom of my invisible containing shell. The violent jouncing and the changes of pressure had been very unpleasant, and I was sick and dizzy. The thought that I was hermetically sealed in my tiny spherical prison by a double wall of glass and force was far from comforting. The feeling of confinement and helplessness, and the array of dangers I might have to face during the travelling period and in the future lent to all my impressions a background of nervous anticipation of trouble. My principal emotions, however, were anxiety for the success of the experiment and an overpowering eagerness to finish it and prove that our theories were right.

Dane was now back on the control platform. He waved at me, grinning for a moment, and then threw the switch. The experiment was on in full force! I was thrown a short distance upward as the floor suddenly became hard beneath me. The field surged into greater and greater strength, storing in its substance the energy being driven into it at the rate of sixteen million kilowatts.

At first nothing happened. Then objects in the room began to get *bluer,* as if I were looking through a tinted glass. By the time I had set my little world to rights and gotten the air conditioning equipment into working order, the normal white of the incandescent lamps in the laboratory had changed to a dusky, eye-paining lavender. After about an hour more, this also faded, and of the outside world nothing remained but an uneasy, nerve-straining darkness. I switched on my lamp and tried to read, but was not very successful, for I was still as nervous and impatient as ever.

This state lasted about fifty hours by my watch; time that I spent very uncomfortably indeed, although I had sufficient food and water, and books and the air equipment to keep me busy. Then, after having fallen asleep for the first time, I awoke to a new phase. The room was suffused with an even, dull red light, partly obscured by a similar glow coming from the walls of the glass globe around me. This light was, I knew, the ordinary long-wave heat radiations given off by bodies at the room temperature; the gravity field had attained a potential capable of stepping up their energy and frequency to the point of appearing as red light. In this red glow, a brighter red human figure frequently appeared, dancing about with incredibly rapid motions. This, of course, was the professor watching over the apparatus. His body temperature was higher than that of the other objects in the room, accounting for the brighter color, and the time effect of the field was speeding up all outside motions. A check with a chronometer in the laboratory outside showed that my time rate was now one fiftieth of the normal.

The red glow strengthened slowly, fluctuating markedly in brightness about once each half hour, because

of the difference in temperature between day and night. Many more hours passed, and the red shaded slowly into a white very much like that of daylight at the beginning, except for the masking glow of the glass sphere itself. Slowly it changed through blue and violet, and then faded as its frequency passed beyond the range of the eye. When last seen, the throb of day and night took less than a minute.

The experiment was approaching its crisis as the potential of the enclosing gravity shell rose slowly to the zero-time value. According to my watch, I had been in the field 150 hours, and this was about the calculated time, although the uncertainly of the power supply made it impossible to calculate the exact moment. My nervousness had passed, but I was now wild with enthusiastic anticipation.

Then, suddenly, it happened.

The surrounding blackness flashed a bright green about me, and the bottom of the sphere simultaneously ceased to support me. I tumbled a long distance through a green world that lashed at me viciously from all directions to the accompaniment of loud snapping and crackling sounds. Then there came a blinding flash of white light, and that was all.

The Suicide Dive

WHEN I came to again, I lay on a carpet of dead leaves in the midst of a dense forest of giant trees. An oxygen cylinder had dug itself a deep depression in the mold a few feet to one side.

I found it extremely painful to move, and my hair was sodden with half clotted blood, which had come from a still bleeding cut on the top of my head. I was literally covered with bruises, but my clothing had stood up remarkably well, and must have protected me no little. My left leg and side, upon which I must have landed, were very stiff and painful, and I was sick and giddy from the fall and from the loss of blood.

With a terrific effort of will, I lifted myself from the ground, and rather to my surprise, found that I could limp along. I spent a few hours setting myself to rights, and also succeeded in nearly stopping the flow of blood from the cut scalp.

I now felt somewhat better, and began taking stock of the situation. So far, Dane's theory seemed to be working, for I was alive, and since this was not the laboratory, it ought to be 8,000 A. D.

On this assumption, what had happened could be explained easily enough. In 6,000 years, the ground had receded, and a forest had grown up where the farm had been. The presence of the forest which had broken my fall was a great piece of luck, but I decided to be worked out the next time, if there were to be a next time.

My next move was obvious. I would have to find civilization. The air was cold, just above freezing, I estimated. In my present condition I would not last long, unless I could find food and shelter. What I really needed, I thought ruefully, was a hospital or its eightieth century equivalent.

But even forgetting these immediate considerations, I had come to the year 8,000 for a definite purpose, and the sooner I got to work on it, the better. But information about teachnical subjects would be found in a city, not in the midst of a forest such as this.

I looked about for some sign of civilization, or some indication of the direction it would be best to take, for I would have to keep moving if I did not want to freeze. On one side, the forest seemed to thin out, and I started limping in this direction.

I soon found myself upon a large outcrop of gneis rock, quite bare of trees. Behind me was the forest. In front, the rocky ground fell away at a sharp slope, almost a cliff, for about three hundred feet, and at its foot was a continuation of the forest.

My position of vantage gave me a wide view over the forest below, but, as far as the eye could reach, there was no sign of a break in the rolling expanse of tree tops. The sun, upon my right, was low on the horizon; I was sure it was setting.

This was a pretty fix! What on earth was this forest doing here? According to our preconceived notions, the world should have been highly crowded in the 80th century. Yet here was an expanse of many square miles without a sign of human habitation.

Worst of all was the predicament this left me in. At the very best, I would have to travel several days before I could get clear of the forest, and I very much doubted if I would be able to make it in my present state. Death from exposure and exhaustion in a forest —a fine ending for a promising adventure.

Just then, my eye was attracted by a moving spot in the sky, not far from the sinking sun. It appeared to be an elongated sphere, was flying at about 1,000 feet, and seemed to be headed directly for my position. Almost at the same time I noticed what appeared to be a much larger ship, with wing surfaces and otherwise looking very much like a rocket ship of the twentieth century, flying high over the first. I judged its altitude to be over 15,000 feet.

Slowly the elongated globe came nearer. It was of very peculiar construction. Its main body was an almost perfect globe, about ten or fifteen feet in diameter. To this was added a tapering tail. In general proportion the whole was strikingly like a raindrop—the perfect streamline figure. As it approached, at about thirty miles per hour, the tail pointed almost straight down, the blunt nose leaning slightly in the direction of motion.

I hastily shoved together a pile of dead wood, intending to make a fire to attract the attention of the flier, for here was a good chance to get out of my predicament. As I fumbled for a match, I looked up again. The raindrop was only about a mile away.

Suddenly my attention was attracted by a heavy, drumming roar accompanied by a thin scream of rising pitch and intensity. I searched the sky to see what the source of this sound could be.

The rocket plane I had noticed before was almost overhead, but its nose pointed straight down. Even as I looked I could see it grow in size as it hurtled straight toward the earth, full power and gravity driving it down at an enormous and constantly increasing speed. The scream grew into an intolerable, ear-splitting whine. I was held paralyzed by the torturing *crescendo* of that all-pervading shriek and by a great, thrilling wonder at that stupendous dive. I could only marvel that the plane's stubby wings were not stripped from its heavy body.

Down it tore through the protesting air, tracing a line across the sky that my eye, involuntarily anticipating, traced to its final end in the forest below. But the

ship did not complete that track to doom. Suddenly, with an added thrill of horror, I saw that the lazily cruising raindrop flier, apparently unaware of what was going on, had drifted full into the path of destruction. And, rushing down upon it like a thunderbolt, came the diving plane. Almost full it struck, or seemed to strike upon an invisible shell that surrounded the raindrop flier at a 300 foot radius. Driven by the awful momentum of its three mile dive, the plane bit deep into this elastic shell.

The blow hammered the raindrop flier down on the forest below my point of vantage. But it did not touch even the tops of the trees. Instead, the mysterious protecting sphere that surrounded it left a great circular mark of trees and branches thrust aside and broken. The flier itself never touched the ground.

Instantly it rebounded, like a rubber ball, rising almost a mile into the air.

But some serious damage had been done. As it rose, the raindrop began spinning end over end and, at rapily increasing speed. When it came down again, only a few hundred feet in front of me, it had become a solid-appearing, flattened spheroid, such was the speed of its rotation. And when it struck, its elastic protecting shell was gone, and it drove through the treetops and into the ground beneath with a rending crash loud as a thunderclap.

But what of the rocket plane? When it struck, it had bounded off, slightly downward and to one side, most of its great momentum communicated to the deceptively massive raindrop by the collision. It was now maneuvering crazily, zooming, diving, rolling, high in the clear pale blue of the evening sky.

I do not know whether the controls had failed or the pilot been rendered unconscious by the shock, and of course, no one will ever know. I watched the wild gyrations until the plane drove into the treetops about a mile behind me, at the end of a wobbling dive. Then all was quiet and peaceful again, and the serene, empty sky seemed to have forgotten that only a few moments before it had held two fine ships, that now would never fly again.

I was brought back to my immediate problems when the match burned my fingers. Just before the first sound of that dive, I had lit the match, and it had burned on, forgotten, until it now saw fit to recall my attention to its presence. I blew it out. It was of no more use to me. Since it had been struck, the rescue it had been intended to call had been wiped out of the sky.

But what had been the purpose of that suicidal dive? The striking of the raindrop could not have been accidental—that would call for too improbable a coincidence. War?—no—I had seen enough of the real thing to realize that the actions of neither party could be explained on that basis. Then, there was the great difference in design and motive power between the two ships.

At this point I was again interrupted by the scream of torn air. This time, the sound came from the direction of the setting sun. A half dozen more raindrop ships came tearing through the atmosphere and stopped abruptly over the broken forest above their wrecked sister-ship. One dropped through the tree-tops apparently to investigate the wreck. In a few minutes it reappeared. Meanwhile, the other raindrops had been hovering at an altitude of about 500 feet, blunt noses pointed straight up. As the sixth joined his fellows, all turned rapidly about a horizontal axis until the tails pointed straight up. For a moment they fell. Then they steadied in their new positions. Dizziness ended.

But the forest beneath! The trees writhed into brittle husks, and a great puff of steam went up, hiding the fliers. In a minute, the steam disappeared, and there was left a vast circular depression, ringed by flaming forest, in which a lake of molten earth and ash bubbled and seethed.

The heat struck me like a blow, and drove me back into the forest. On the top of the cliff, the forest was bursting into flame in innumerable places from the terrific radiation of that lake of heat. Desperately, I hopped at my best speed along the cliff line, trying to outflank the fire. And as I ran, a single thought echoed and re-echoed through my mind: "Atomic power—they have atomic power!"

My effort to outflank the fire was woefully unsuccessful, and I was forced into taking a diagonal course. Do what I would, the wind was always nearly behind me, and the fire marched after me, hot and choking smoke giving me a foretaste of my probable fate. This was out of the frying pan into the fire with a vengeance!

The sun had set, and what little light was left was obscured by the cloud of steam and smoke swirling above and around me. I limped along. My life was worth over three million dollars, and I was obliged to make every effort to save it. But crippled and tired as I was, I would be unable to outrun the fire for any length of time.

The effort was probably vain.

Because of the denseness of the forest, there was little undergrowth, and the going was fairly easy, or would have been if my left leg had not been almost useless. Considering the details of my short existence in 8,000 A. D., I became more and more convinced that fate had been giving me a dirty deal. This made me angry, and with every step I took, my anger increased.

Then I ran across an asphalted road, obviously a park walk. It seemed to go more or less in the direction that interested me, namely, away from the fire, so I decided to give my luck a chance to redeem itself and struck out along the walk.

I had scarcely limped a dozen steps when someone called, from a short distance behind, "Hello! How did you escape?" I looked back. In the smoky twilight I could distinguish a figure trotting down the road. It soon caught up, and fell in step beside me.

The situation called for tact. I was certainly not able to carry on an intelligent conversation on the current events of the year 8,000 A. D., and to explain the real reason for my presence was out of the question. Luckily, the stranger had spoken in perfect twentieth century English; at least my speech would not betray me.

So, answering the question put to me, I croaked, "We haven't escaped yet," and waved toward the rear. The fire had in truth gained considerably, the wind seemed to be freshening. The smoke was now so thick that both of us choked and coughed continuously.

"It's only a short way to my ship," choked my companion, and started to run again. I did my best to keep up, but after a few steps I got my weight awkwardly on my bad leg, which promptly folded up, and the pain or the fall put me out for the second time that day.

Information

WHEN I came to again, almost complete darkness surrounded me. But the air was clear, quite free of smoke, and I seemed to be lying on a soft couch. For a time I wondered hazily what had become of the fire. Then it occurred to me that this was the cabin of the flier which my companion had mentioned. As final proof, there came from the outside the muffled, drumming hiss of the driving rockets, familiar to me from years of travel in similar planes back in my first life in the twentieth century.

I looked about more carefully. Toward one end of the cabin was the faint glow of an instrument panel, and to one side was a small, stubby winged model of a rocket plane, glowing phosphorescently in the dark. In the faint glow, I made out the figure of the pilot seated between the panel and the glowing model, and with one hand frequently changing the position of the model slightly. I realized that the model was a graphic control—a change in its position causing a similar change in the flying altitude of the plane. This particular application was new to me, but I immediately appreciated its simplicity and efficiency.

I tried to get up, but a large majority of my joints and muscles put in a vehement protest, and I gave up the idea. The pilot, hearing the movement, snapped several switches on the instrument panel, then rose and came toward me. The room became brightly lit up, and at the same time curtains came down over the lookout port in the front and over windows lining the sides of the cabin.

I don't know that I had formed any definite ideas about the appearance of my companion; certainly there was little enough to judge by in our meeting in the darkness and in the smoke of the burning forest. But somehow I had a strong impression that he was a young man.

So, seeing him clearly for the first time, it was with something of a shock that I realized *he* was a decidedly pretty young woman. Broad shoulders, low pitched voice and closely cropped hair had combined to deceive me in that first meeting.

She smiled at me radiantly, and after making sure I was comfortable, began to praise my courage and skill in handling rocket planes in the very highest of terms. Naturally, this pleased me immensely, but I was at a loss to know just what I had done to deserve this praise. The most heroic act I could recall was my fainting there in the forest and putting this same young woman to the trouble of lugging my not inconsiderable weight some distance to the plane.

Finally I got a clue. "I was so afraid you had been killed in that terrible crash," she said, and her troubled eyes and involuntary shudder brought back to me, with startling clearness, the vision of the rocket plane tearing into the tree tops in that last, uncontrolled dive after its deliberate collision with the raindrop. So that was it. The girl thought I had been the pilot of that plane. No wonder she admired the daring and skill of the man who guided that plane, and in spite of unnerving noise, vibration, and a speed that must have rendered the controls almost useless, had been able to dive three miles and strike with the accuracy of a bird of prey.

It was really a piece of luck to be provided so readily with a very flattering identity, but I hated to take advantage of it. Still, I had more than my own feelings to consider. After all, the success or failure of my country in the war might very possibly depend upon my taking advantage of every opportunity here in the year 8,000. All the same, it made me feel rather despicable to do so.

But such minor scruples were quickly forgotten in the very difficult task that now lay before me. Knowing nothing of this future world, I would have to keep up my end of the conversation without arousing suspicion, and at the same time get as much information as possible about the general state of the world, the identity of the people of the raindrop fliers, and the likelihood of getting hold of their method of releasing atomic energy. Aided by the unsuspecting admiration of the girl, the excuse of my injuries, and what I believe to have been a masterly handling of the conversation on my part, I did surprisingly well at this almost impossible task. A radio which made occasional short news speeches and several small newspapers that happened to be on hand also helped remarkably, for both announcer and reporter still retained the old, familiar failing of giving half the previous history of the world as a prelude to each piece of news.

Naturally my information was rather sketchy, and I am sorry to say that from what I got, I was unable to form any clear idea of the social system of the eightieth century. It might have been almost anything. I was also unable to get any historical information concerning a certain war, date about 1975.

But I did get all I wanted about the people of the raindrop fliers, and other essentials. First, the date was 13-13-8117. Fortunately, whatever had taken the place of month and day did not interest me. The year gave final proof that Dane's theory was right. So much for that. The rest of the story was strange enough.

About ten years before, the first raindrop ship appeared suddenly, out of nowhere. It was large, about 500 feet in diameter for the globular portion. It was not driven by rockets or any other visible means, but tests showed high ionization of the air on a line with its tail. This ship merely cruised about, covering all of the earth's surface in a leisurely and careful survey, and after about a year, finished and left for parts unknown. It was impossible to get the stranger to communicate, although all sorts of schemes were tried. Whoever or whatever was inside paid no attention at all to any of these efforts. Curiously disposed private or government planes found it impossible to get within 1,000 feet of the stranger, they simply encountered an invisible but stiff elastic wall which they could not penetrate.

Scientific opinion was fairly well agreed that this was a visitor from space, and that its motive power was obtained by either the partial or complete disintegration of atoms. The elastic wall they could not understand, but I recognized in it a form of gravity field, which I could have reproduced readily. That Dane's discovery was unknown does not augur well for the success of the plans we have made for operations in this, the twentieth century. However, we will try to carry them out anyhow.

But to return to that future age and the non-terrestrial raindrop ship—for several years no further sign of it was seen. Then, one day, about two thousand large ones and a number of small ones about ten feet in diameter appeared at various points on the earth's surface. Without waste of time or ceremony, they immediately began raiding libraries, museums, and factories,

removing every single scrap of the contents of every building upon which their choice fell. In the first few raids, everyone in or near the raided places was killed, death being caused by some high frequency radiation that caused air to fluoresce a brilliant violet in its presence. The government, however, was soon able to make up a list of places likely to be raided, such was the system with which this work was carried out, and after that, everyone cleared out of dangerous buildings when a raider appeared.

Naturally every effort was made to destroy these unwelcome guests, but neither bombs nor artillery could penetrate the protecting and invisible shells to any depth. There was nothing to do but hope that the visitors would get tired of this sport and go away.

Finally, it seemed that this hoped for end had arrived. Gorged with plunder, practically all of the ships left for parts unknown, leaving only a few of the ten foot variety behind.

But the following jubilation was not long lived. After a few weeks, the raindrop ships returned in full force, and began to prepare for a new phase of activity. This had just recently gotten under way, and was quite in keeping with the previous, heartlessly logical methods of the invaders.

The large ships gathered at the equator and formed a ring which completely encircled the earth, the individual ships being about two thousand miles high and about twenty miles apart. Then each ship turned on two wide, flat fans of that violently fluorescing radiation that meant instant death for any living thing that came within its scope. These individual rays, joining those of the ships to either side, coalesced into two solid walls of impossible radiation.

Each ship then began to increase the angle between the two rays it contributed, one to each wall. As a result, the walls moved along the surface of the earth, one from the equator to the south, the other to the north.

The purpose of this plan was plain enough. Evidently the invaders had decided that the earth would suit them as an abode, but had found that certain organisms would be unhealthy. The answer lay in a complete and systematic sterilization of the whole earth, since the harmful organisms were spread all over its surface, and probably lived as parasites in animals and plants. The system they had adopted left a sterile zone of gradually increasing width on the earth's surface, far below its surface, and in the air above. The zone was completely closed, since the two ray walls intersected below the points of coalescence, and since the radiations had such a tremendous penetration that the effect could be noticed after the wall had gone completely through the earth and emerged on the other side.

By a strange coincidence, the rays had begun to separate only a few hours before my arrival. Travelling at over 100 miles per hour, the walls had already sterilized a zone 1,500 miles on each side of the equator. A small portion of the population ran before the ray-walls, but the rest calmly declined to move merely for the purpose of prolonging life for a few hours, and died in their homes when the walls swept over them. I thought how this courageous good sense was unlike the wild panic that would have seized the humanity of my time under similar circumstances. In some way, the human stock must have been improved greatly in the intervening six thousand years.

There was no chance of stopping the ray walls. Of course, scientists had been working, since the first advent of the invaders, for an offensive or defensive weapon that would prove effective. Their efforts had been unproductive for ten years, so that there was little chance that a few hours more would bring any help from this direction.

My companion had been visiting near the equator, and when the purpose of the invaders became clear, had left to join her family, which lived in the far northern part of North America. On the way, she had noticed a giant transport plane following one of the scout raindrops and keeping about three miles above it. Her curiosity aroused, she had joined the procession, flying low and off to one side. Then the transport had plunged, and the rest I knew. The girl, hoping against hope that the pilot of the plane which had made the first successful assault against the invaders was still alive, had landed her plane as near as possible to the scene of the crash and started on foot for the wreck. So came about our meeting and the mistaken identification of myself with the pilot of the diving plane.

When the girl came to this point in her story, she asked me whether I had hoped to accomplish anything in addition to just destroying one of the enemy. Now, my business in the future, and a serious and urgent one it was too, was to get hold of the secret of atomic disintegration. As soon as I had heard of the unpleasant attitude of the invaders, who alone possessed the secret, I had begun searching about for a way to crack the hard shells of their protective screens, so that I could get at the machinery. Evidently the very extraordinary man who had piloted the rocket plane had set the same problem before himself, and solved it, too, and in a very brilliant way. So that when the question of motive was put up to me, I was able to reveal my real purpose, the filching of the secret of atomic power. Very fortunately, my mission and the only salvation for this future world both led in the same direction.

Strange as it may seem, when I thought of this world of 8,000 A. D., I did not picture the teeming millions of inhabitants, but thought rather of the one who was with me in the plane, talking bravely, even lightly, of the things that spelled almost immediate death for her and for those she loved. I suppose the reason for this line of thought was that she was the only representative of this world I had yet seen, the others were still hard to imagine as actually existing, real people.

Success and Failure

UNFORTUNATELY, it would be impossible to duplicate the diving assault. The invaders had paid no attention to the people of earth because they thought them incapable of either harming them or delaying their program. Now, they had found one of their ships wrecked by violence, exactly how, they could only guess. Radio reports confirmed my earlier judgment that the scout raindrops would try to find out what it was that had done the damage. Report after report came in, giving eyewitnesses' accounts of the sweeping of an earth plane with the fluorescent ray, followed by the capture of the plane with some sort of force projection, and its removal to a quiet section for examination.

Try as I would, I could think of no way to break the

invaders' defenses by direct assault. The need for haste was frantic, and I finally made up my mind to try a very dangerous trick based upon the enemies' suddenly developed curiosity concerning the contents of terrestrial rocket planes. With the best of luck, this scheme would give me possession of one of the scout raindrops, and, I hoped, the secret of atomic disintegration. Unlimited power would make our time machine very simple to operate, and I was convinced that in one way or another, the possession of this secret would make it possible to help this future world, as well as to successfully complete my mission for 1973.

The ambitiousness of these plans, in which I was the key in the welfare of two worlds, did not strike me at the time. I was far too busy with the problem itself to think of the implications of success or failure.

I explained my plan to the girl, advising her to leave the plane and allow me to go through with my wild plan alone. She refused to go, maintaining that two in the plane increased the chance of success, and pointing out that if I failed, death would be just as certain. Of course, this last was not true, for I could come back again, but I could not contradict it without going into my true origin. Taking advantage of my momentary confusion as I tried to work out a counter attack for this argument, she managed to strap on the parachute that was an integral part of the plan. And while we still disputed, the plan initiated itself of its own accord.

The cabin had long ago been darkened and the shutters let up, and now the faint light of early dawn was coming through the windows. We were flying slowly at about 20,000 feet over a white expanse of comparatively level, treeless, snow-covered country. Suddenly my companion, glancing idly out of a rear port, cried, "A scout plane is after us." And the plan I had worked out was our only chance of escape.

"Jump," I said, "and drop as far as you dare before opening the 'chute," and I leaped for the cabin door, stiffness forgotten. The girl stopped only to set the control for an unmaintainable vertical climb, and then went for the door also. The floor pitched violently as the plane lurched into the zoom, but she managed to catch the edge of the open door. I threw her out with a single lunge, and followed myself.

That fall was easily the most unpleasant experience of my stay in the future century. I tumbled from the very start, and never saw anything, plane, or raider, or ice fields. As is usual in a fall, my reflexes went wrong under the unfamiliar conditions, and tried to run the reasoning part of my brain into the same panic they were in. The icy wind tore past my face and body in unbearable torture, and I think I covered my eyes with my hands to keep them from being ripped out of their sockets. Breathing was out of the question, not because there was not air enough, but because my diaphragm, with gravity gone, had forgotten its function. Even the well-trained muscles of my arms were nearly beyond my control. It required almost superhuman effort to maintain a vestige of control over my brain, but I knew that if that was lost, both I and my plan were done for. Calmly, in that one quiet corner, I estimated the distance I had fallen. Stopping too soon meant almost certain discovery, stopping too late, death on the ground below. But when I decided that the time had come, I had to spend precious moments in getting control of my right arm, tearing it away from my face against what seemed a will of its own. Finally, it found the ring and pulled. The 'chute caught the air.

Immediately the harness tightened with a snapping jar that shook me back to ordinary consciousness. There was the parachute bellying above me. Below, the ground was less than 500 feet away. I looked frantically for a sign of the girl. Had she enjoyed similar good fortune? Yes! There, above me and a little to one side, was another parachute. I landed in a snowdrift, and was there to help her when she came down a few moments later.

We were frozen through and through, but quite happy. So far the plan had worked perfectly—the danger from the violet ray and the danger of the delayed parachute opening had been passed safely. But had the raider seen our plane at all? The sudden zoom and the later maneuvers of the plane out of control should have attracted his attention. We searched the sky anxiously. If the raider did not come down at a point reasonably close to our position, we would freeze to death.

We did not see the plane until it was less than 5,000 feet high and almost overhead. The power was still on full, but it drifted straight down, the raindrop flier close to its side holding it firmly against the pull of the rockets. We dug into a snowdrift and watched them land on a level stretch about a quarter mile to one side and about 150 feet apart.

A port of the raider opened, and two figures in air suits emerged. They looked very much as humans would in a similar rig; it was certain that they walked on two legs and had two armlike members. They moved slowly toward the rocket plane, which had landed upright and whose rockets were still going at full blast.

Here was my chance. According to my plan, which had so far worked like a charm, I waited until the figures had entered the rocket ship, and then, leaving the girl hidden, began moving with as much caution as was compatible with haste toward the abandoned raindrop. I was about 200 feet away when both of the raiders emerged from the captured plane and instantly saw me. There was nothing for it but to beat them to the raindrop.

I had covered less than one quarter of the distance when it became plain that I would win by a large margin. Then the two stopped, and each using the left armlike member, produced two regulation long barrelled automatic pistols and started banging away. At the last, the plan had gone wrong. Bullets zipped all about me.

ONLY a few more steps to go! Then, someone with a club hit me violently on the back. I looked around—of course there was no one near me. My legs became suddenly weak, but my momentum carried me into the open port of the raindrop. I was in a tiny passage, plainly an airlock, for another door blocked the end. There was a button in the wall. I pushed it and was almost blown out by a rush of scalding hot air as the door opened.

I tumbled into an almost spherical room about eight feet in diameter. The front hemisphere was of clear crystal. Projecting from a flattened region in the rear to a point about three feet from the front crystal wall was a stout column. On the end of this, a slender rod of metal about six inches long was mounted in a ball and socket joint. A foot below the end of the column, a carefully graduated wheel was mounted, turning

about an axis inside of the shaft. This was a type of control with which I was familiar—I had developed one almost like it for the government ships back in 1973. The wheel controlled the power applied, and the small rod caused the ship to rotate in the same direction as its deflection, and at a rate proportional to the amount of deflection from neutral.

I turned the wheel slowly, applying power. The ship started rolling over. I reached for the control rod, but it was so badly blurred that I fumbled for it interminably. The ship lurched violently, and I was torn from my weak hold on the column and dumped to the flattened floor at the bottom of the sphere. Through the glass covering I saw banks of countless instruments, which I had not noticed before on account of the darkness. Then my vision blurred, cleared again, and faded entirely.

I felt that I was in a pool of warm water, very comfortable. But when I stretched luxuriously a blast of fire seared through my chest, bringing me to full consciousness sharply. I lay huddled in a pool of blood in the bottom of the sphere; remembered everything. A hot sun was shining through the crystal hemisphere above, full upon me. Without it, I probably would never have revived.

Up there were the controls. I would have to reach them, then tie myself into position. A look at the air-lock showed that it was closed tightly, probably by the lurch at the start. After long and painful effort I succeeded in climbing to the controls and fastening myself into position with belts provided for that purpose. I depressed the directing rod, the ship's nose spun down, and the horizon swept into view. The ice fields were gone, and in their place was an unbroken stretch of sea, far, far below. The sun rode high in the sky.

I looked at my clothing; it was stained with great blotches of dried blood. I ripped open my shirt. There, low on the center of my chest was a blue rimmed red pucker which frothed red bubbles with every breath. I looked at it impersonally; knew there was another like it on my back. I felt a mild surprise that I was still alive, but knew there would not long be occasion for that surprise. My three million dollar extra life was gone beyond hope.

I thought of the plan which had worked so well until the very last moment; of the girl, alone on a lost northern ice field with two merciless beings from another world, armed and angry; of the atomic machines that were only a few feet away but which I could never reach and examine; and began to seethe with impotent rage. Everything had gone wrong, and it was too late to help.

Then I remembered the ray walls, and I knew what I could do. I looked carefully at the control column. Between the directing rod and the wheel were set three small locking buttons. I dropped to the seat and tried them.. The first controlled the repulsive screen, and I locked it in and allowed the ship to sink until it floated on the screen about 300 feet above the water. I turned the ship slowly until the transparent nose pointed straight down and then set the second button. A circle of sea directly below boiled violently, and the ship jumped into the air from the reaction of driving out the heat rays. The third button caused a similar jump due to reaction, but it controlled the violet ray, which because of its great penetration gave no noticeable heating effect.

I turned the power control wheel to its maximum and headed southward, as nearly as I could judge from the position of the sun. The hull vibrated in a high pitched scream as the streamlined ship tore through the air. The scream weakened as I gained altitude; finally died. The sea raced beneath me, and sank further and further away.

After a time I considered it necessary to begin slowing, and turned the ship about so that the driving tube, which pointed along the streamlined tail, could oppose the now excessive speed. The ship was almost at a standstill when I turned again, and saw, far below and in the distance, the violet shimmer of the ray walls I had sought. Carefully avoiding the path of the rays, I soon came in sight of the line of giant ships that maintained the walls. Casually I approached the nearest one; it did not object to my presence. A few seconds later the 500 foot hulk was a globular drop of incandescent metal, falling through airless space to the earth. This efficient action pleased me immensely. I turned my ship and headed toward the next in line, at an acceleration that started the blood oozing through the wound in my breast.

That was the last I can clearly remember. Thereafter, time was measured by centuries of agony as I drew and expelled each breath. But my will was driven by a single purpose—destroy, destroy, destroy—and in an occasional clear interval I managed to keep my ship flying low over the line of monster raindrops. Both rays were on continuously, and I think I missed very few in that line as I swept along. It never occurred to me to wonder why the invaders put up no defense—I think now that the ships must have been automatic and controlled by time mechanisms or from a distance. No provision had been made for an attack.

Finally, in one of my better moments, I saw the line below breaking up, the ships fleeing in all directions before my single tiny scout. And then the outer world was slowly submerged in a rising sea of pain.

Consciousness came back slowly, but the pain was gone, and I felt a perfect comfort such as I had never known before. I opened my eyes. The transparent nose of my raindrop showed a sky of black velvet, with a slowly moving procession of bright points. Also part of that slow parade was a small, brilliant white crescent—the moon—and a tremendous, somewhat lopsided ring of light—the earth. My ship, spinning slowly end over end, reeled off this panorama endlessly. I tried to reach for the directing rod, to regain control, but I could not move my arm, weightless though it was.

My mind was very clear. The ring of destruction had been thoroughly broken, and it would take months to reorganize it, if ever that scheme were tried again. My trip had not been in vain. The secret of disintegration had eluded me, but the short day I had spent in this age had not been without success: soul-satisfying destruction. I thought of the girl—I did not even know her name—the only inhabitant of this world I had seen, and resolved that when I came again, my first effort would be to rescue her. I wondered what she thought of me, flying away and not returning.

Looking back over my actions, I found not a single cause for regret—not a single mistake. My hand had been forced from the beginning, and with better luck I would have gone far. Even with things as they were, I had no cause to complain.

(*Continued on page 733*)

Captain Brink of the Space Marines

By Bob Olsen

Author of "The Ant with a Human Soul," "The Man Who Annexed the Moon," etc.

TO us it may seem inconceivable, at first thought, that life can exist in the nethermost depths of the ocean, but more and more we learn that some form of life, especially adapted to the pressure and conditions of the very deep seas, is present there. By the same token, the fact that atmospheric and other conditions are not similar to those of the Earth does not necessarily mean that no form of life is possible on another planet. There may, quite conceivably, be intelligent life on either Venus or Mars, or even on our fair satellite Luna—though, of course, such life would be vastly different from our own. Bob Olsen's conception is exceedingly well thought out and the story makes excellent reading.

Illustrated by MOREY

From Ganymede to Titan

AT the door of his rocket-ship hangar, Captain Brink jabbed his knuckles into his lean hips and gazed smilingly at the sky. Marvelous was the sight which met his feasting eyes—far more marvelous than any Earth-bound human being could ever hope to behold. Hanging overhead, like a colossal balloon, a cloud-swathed, glowing orb rolled sedately. From its striped bands of apple green, robin's-egg blue and canary yellow and from the enormous oval spot which glared like a blood-shot eye from the upper portion of its southern hemisphere, a terrestrial astronomer would have recognized the great planet Jupiter. But this Gargantuan globe of molten minerals, with its spectacular bands of tumultuous, varicolored clouds billowing around it, was not the only wonder which the officer saw.

The sun was visible also, but it was a shrunken, faded sun, scarcely larger than a golf-ball. It was not brilliant enough to quench the stars, which spattered the heavens with their wan points of light. In addition to the sun, the stars and the huge planet, no less than five of Jupiter's nine moons were visible. Two of them were tiny but each of the other three was larger than Luna appears to be when viewed from the Earth. Europa was a thin, sickle-shaped crescent. Io presented a fantastically divided disk, half of which reflected the feeble light of the sun, while the other portion was illuminated more brightly by the colorful glow from Jupiter. Callisto, the largest of the trinity, displayed a full circle of pale but lovely luminescence.

Brink's attention was arrested by a ghostly whisper which seemed to leap mysteriously out of the rarefied air.

"Seeking Captain Brink! Seeking Captain Frank Brink!"

At the sound of his name Captain Brink touched the button of his visaphone, a small flat object shaped like a cigarette case, which was held firmly against his broad chest by the crossed straps of his service belt.

"Captain Brink reporting," he announced.

Instantly the head and shoulders of an elderly man materialized in the air two meters in front of Brink's eyes. It looked marvelously substantial and life-like, yet it was not projected on anything resembling a screen, nor was the image supported in any other way.

Recognizing the grim, weather-beaten features of his chief, Colonel Steiner, Brink clicked his heels together and saluted precisely.

"Captain Brink, at your service, Colonel Steiner!"

"At ease, Captain Brink. I have an important matter to discuss with you. Kindly report to headquarters at once."

The young officer unwound the translucent flaps which were wrapped about his sleeves, hooked their ends to

She pointed to a large fleet of bizarre polyhedrons which were swarming upward like angry bees from an overturned hive.

small rings on his thighs and held his arms out parallel to the ground, thus stretching taut the triangular wing-membranes between his side and his extended arms. In each hand he held a cylinder, by means of which he could operate the small gravity-nullifier on his back.

As the motor started to drone, Brink gave a little leap and soared blithely into the air. At an altitude of a hundred meters or so, he leveled off and flew swiftly toward the distant buildings, his artificial wings fanning the air with rhythmic, sweeping strokes. In a few minutes he had reached a point where he could easily read the inscription on the roof of the octagonal edifice toward which he was winging:

Earth Republic Space Navy
Interplanetary Outpost
Ganymede—Jupiter System

Bringing his arms to his sides, Brink fell like a wounded bird until he was only about twenty meters from the ground. Then he spread his wings, described a neat loop and alighted gracefully on the roof of the building. Dropping through a trap door, he walked briskly to Colonel Steiner's office.

Motioning for Brink to make himself comfortable in a chromium-framed pneumatic-cushioned chair, the Colonel began, "This time I have a very difficult assignment for you, Captain."

Brink's eyes sparkled as he declared, "I'm glad to hear that, Sir. It's nearly a month now since I did anything that could be classed as exciting."

"Don't worry," the old man grinned. "You'll probably get plenty of excitement on this trip. I'm sending you to Titan."

"To Titan?" Brink exclaimed. "Surely you don't mean the sixth satellite of Saturn, do you?"

"That's precisely what I do mean."

"But Titan hasn't been explored yet. We don't even know if it is habitable."

"We didn't until a few hours ago. But now we know that it is not only habitable but very much inhabited as well. Two citizens of the Earth Republic are there now—in trouble. The Secretary of Interplanetary Relations has ordered me to send an expedition there immediately. I have selected you as the logical man to take charge of this work."

"Thank you, Sir."

"That's all right. You will, of course, want to know the purpose of the expedition. We have been ordered to find and rescue the Valentine Sisters."

"What! Again?" Brink ejaculated.

"Yes! Again! I don't blame you for being disgusted. This is the fourth time the E. R. S. N. has been called on to save those meddlesome damsels from the consequences of their eternal quest for thrills. Previously their exploits have been confined to the unexplored portions of Mars and Venus where our garrisons were near to help them if they got into trouble. This time it looks much more serious. There really ought to be a law passed to prevent immature, irresponsible girls from getting into interplanetary messes."

"Nevertheless, you can't help admiring the Valentine twins for their pluck," Brink remarked. "There aren't many girls in their twenties who would have the guts to navigate a rocket ship into remote regions of space as they have done."

"Don't waste your admiration on them, Captain," said Steiner. "They are thrill-seekers and publicity hounds."

"Maybe so. But while they are acquiring their thrills and their notoriety they also have gone through the motions of gathering scientific data."

"I suppose they have done some good," the Colonel growled. "But that's neither here nor there. Right now your job is to locate the Valentine Twins and bring them back to earth. Take a look at this." He handed Brink a metal cylinder about a meter long and fifteen centimeters in diameter. Frank recognized it as a help-rocket such as are used to summon assistance for space ships in distress.

"It was picked up by the crew of the space-freighter, Hercules," Steiner explained. "This was found inside of it."

Brink took the scrap of paper, which the general handed to him, and read the following message: "Vera and Velma Valentine—calling for help. Our rocket-ship is wrecked on Titan about three kilometers north of a city of cones on the shore of a large orange-colored lake. We are surrounded by scores of horrible, shapeless creatures. They are closing in on us. There is just time to dispatch this rocket. Come, help us, quickly, please!"

"Shall I keep this?" Brink asked.

"You may as well. Not much to go on, I'm afraid, but it's all we have. By exercising your usual resourcefulness, I hope you will be able to accomplish the task."

"How many ships do you think I shall need?"

"You may need the whole fleet, but I'm afraid I shall be able to spare only one twenty-meter ship."

"Only one ship?" Brink exclaimed. "One small ship to fight the whole population of Titan? Why, it just isn't in the cards to——"

The Colonel interrupted him with, "Sorry, Frank, but one ship is all I can spare. Several things have happened within the last few days—things that will tax our forces to the limit. Yesterday a revolution broke out on Io. The Universe Mining Corporation is having plenty of trouble at the platinum mines on Callisto. As if that wasn't plenty, the space pirates are up to their old tricks—holding up and robbing the bullion ships. I really need every ship and every man in the service. If I had my way, I'd let the Valentine sisters work out their own salvation, but orders are orders. For political reasons we must at least go through the motions of trying to rescue them, but one small ship is the most I can take away from our regular work. I guess you know what that means. On a long trip like that you'll need every cubic centimeter of storage space for fuel, oxygen, water and food. There will be room for only two other men besides yourself."

"You have certainly given me a good job," Brink grinned. "All I have to do is to conquer a whole nation of unknown enemies with one ship and three men."

"I realize that your task will not be an easy one," the general conceded. "But I'm hoping you will make up for your lack of numbers by your well known ability as a strategist. After all, if it is a question of open warfare, perhaps even the entire E. R. S. N. fleet would not be powerful enough to accomplish the objective. And when it comes to stealth and strategy, the smaller the force is, the more likely it is to succeed."

"Very well, Sir," Brink saluted. "I'll do my best, Sir."

"You don't need to tell me that," the old man said as he gave Frank an affectionate pat on the shoulder. "In recognition of the difficulties you are likely to encounter,

I shall permit you to select your own assistants. You are at liberty to choose any two men in the Ganymede garrison. If you wish, I shall allow you one hour in which to make your decision."

"I shall not need it," Brink told him. "My choice is already made. Will you be good enough to notify Captain Albert Hawkins and Lieutenant James Sullivan that they are to accompany me?"

TWO hours later, having checked over the cargo and equipment of the new space flyer for the third and last time, Captain Brink, accompanied by his two chosen companions, rocketed through Ganymede's atmosphere and headed toward the planet Saturn.

When the speed indicator told him that the ship had attained its maximum acceleration, Frank shut off the exhausts and relaxed his vigilant attention to the controls.

Captain Hawkins stretched himself, yawned cavernously and mumbled, "There's one thing I like about these long trips. It gives a fellow a chance to catch up on his sleep."

Brink chuckled, "Do you know, Al, I believe your idea of Heaven is a place where you can curl up in a knot and snore for a million years."

"Don't exaggerate," Hawkins protested languidly. "I'll admit I like to sleep. But a million years! Now if you want to make it, say five hundred thousand years, why——"

"Beat it!" Brink interrupted him. "Crawl into your hammock and snooze your fool head off!"

Lieutenant Sullivan unlimbered a battered guitar, twisted the keys experimentally, plucked out a few chords of doubtful harmony and crooned:

Oh, Captain Jinks, the space marine——
He drank a quart of gasoline;
And since that time he ain't benzine.
He's now a piece-ful fight-tur!

Brink picked up a magazine of ancient vintage and started reading an absurdly impossible story about a Martian's adventures on Zoxaquokivizibum, an imaginary planet of the star Sirius. After a page or two, he threw the book down in disgust. "Why," he asked himself, "Why don't these writers of science fiction try to keep within the boundaries of plausibility."

Having sung for the seventeenth time the mournful but sprightly saga of the bibulous Captain Jinks, Sullivan put away the guitar and remarked, "By the way, Captain Frank, I've heard that song I don't know how many times and I've often been called a Space Marine myself, and yet I've never been able to make the slightest iota of sense out of that ridiculous nomenclature. I always thought that the word 'marine' meant something pertaining to the sea. Why call us marines when we never go near any oceans?"

"Merely a figure of speech, my boy," Brink elucidated. "Didn't you ever hear about the United States Marines?"

"Certainly I've heard of them. During the World War at the beginning of the twentieth century they were called 'Devil Dogs'."

"That was because they knew how to fight. My great-great-great-grandfather was a Colonel in the United States Marines. Evidently his descendents must have thought that meant something, because the traditions of the marines have been handed down from father to son ever since. They were called marines because they were stationed on warships. That was long before the Earth Republic was established. In those days each nation was goverened independently and had its own separate navy. Whenever trouble started in any part of the world, the marines were always the first to arrive. 'Tell it to the marines' was a common expression. Another phrase that has been handed down in history is 'The marines have landed and have the situation well in hand.' Doesn't that have a familiar ring?"

"It certainly does. Only nowadays, whenever there is trouble, it is always the E. R. S. N. forces that arrive first and get the situation well in hand."

"And that's why they call us the Space Marines! Perhaps it will also interest you to know that the song you were trying to sing a while ago is a rotten parody on a ditty that dates back even further than the United States Marines. It goes like this:

"Oh I'm Captain Jinks of the Horse Marines.
I feed my horse on corn and beans.
In fact it's quite—"

That was as far as he got. He was interrupted by a stentorian snore, which rumbled forth from the storage chamber like the snarl of an enraged tiger.

It was so unexpected that Sullivan gave a startled jump. Since his body was practically weightless, it sent him sailing out of his seat, bumping his head against the roof of the control room.

When he had recovered his equilibrium, he stammered, "Does he always snore like that?"

"Not always. Only when he is asleep."

"Naturally, you goop. But he must have been asleep for several minutes. How do you explain the sudden outburst of cacophony?"

"Don't ask me to explain anything about Al's peculiarities," Brink grinned. "When it comes to snoozing, he's in a class by himself. It always takes him some time before he is warmed up enough to snore with his full volume, but once he gets going, even the horn of Gabriel couldn't arouse him. I've known him to slumber like a baby with the rockets roaring full blast and with the ship turning pin-wheels."

"Isn't there any way to wake him?" Sullivan asked.

"Only one way I know of."

"And what is that?"

"Watch."

Brink picked up one of those flexible drinking tubes that are familiar to all interplanetary travelers. Unscrewing the cap and squeezing the end opposite the nozzle, he pressed out into his hand a quantity of water. He took careful aim and tossed it gently in the direction of the man in the hammock. Like everything else aboard the space-flyer, the water was weightless, but the cohesion of its particles held it together in an egg-shaped globule. With a sharp smack the liquid missile struck the sleeper's face, flattening out like a pancake and completely covering his nose and mouth.

Like a sea-lion coming up for air, Hawkins snorted and gurgled and finally tumbled out of the hammock and floated to the floor with his arms and legs floundering wildly.

"What tha—What tha!" he blubbered as soon as he could get his breath. "Can't you even let a guy sleep in peace?"

Captured by Amoebas

FOR many weary days the three space travelers felt as if they were floating immovably in the center of the vast, hollow sphere of sable blackness that was the sky. Behind them the miniature sun with its

blazing corona shooting out tongues of lambent flame in all directions, grew smaller and smaller. Jupiter, too, had shrunk appallingly. Like a slowly deflating balloon it had contracted until it could scarcely be distinguished from the brilliant stars which stabbed through the shell of blackness from all directions.

Meanwhile, there loomed up ahead of them a magnificent spectacle, which swelled and brightened with incredible rapidity. From thte incomparable, awe-inspiring rings of relatively minute particles which spun magically around the golden ball within their circumference, they all knew that it was the planet Saturn. Swimming about it, at varying distances from the outer edge of the largest ring, were no less than ten moons.

It was an easy matter to pick out Titan, which was considerably larger than any of the other satellites. Circling it at a distance of about a hundred kilometers, Brink scanned the surface of the satellite with the ship's televiewer, that marvelous instrument which not only magnified images but also amplified them, just as the loud speaker of a radio amplifies sound. With it the observer could distinguish even the minutest details with a startling clearness at a distance of several hundred kilometers.

Captain Brink soon located the large, orange-colored lake with the city of cones nestling close to its shores. He attributed the peculiar color of the water to the golden light, which emanated from the seething surface of the parent planet.

Not far from the lake was what looked like a forest. It was densely clothed with purple-hued plants of weirdly fantastic shapes. Brink decided to land within this wooded area, near the edge of it, which was closest to the lake. By this means he hoped to conceal the flyer from the eyes of the creatures who dwelt in the city. Thanks to the efficient gravity-regulator with which the ship was equipped, he set the craft down so deftly that scarcely a quiver was felt as it slid gently between the branches. The trees in this fantastic forest reminded Brink of the submarine gardens near Catalina Island, California, which he had once viewed through the glass bottom of a sight-seeing boat.

As soon as the ship touched the ground, Captain Hawkins opened a valve and drew in a sample of air which he analyzed quickly.

Meanwhile, Sullivan had taken a reading of the centigrade thermometer which registered the outside temperature.

"Fourteen point six," he announced. "I expected it would be much colder than that, considering that we are getting only one ninetieth as much heat as the earth gets from the sun."

"The climate here is a good deal like that on Ganymede," Brink explained. "Titan gets plenty of heat and light from its parent planet. We won't even need our electrically heated suits. How is the atmosphere, Al?"

"A trifle shy on oxygen and long on carbon dioxide," Hawkins replied. "But it's perfectly safe to breathe."

"Good!" said the leader. "And, by the way, Al, I think you had better stay in the ship while Jimmy and I go out and reconnoiter. If you want to take a look outside later on, I'll come back and relieve you."

"Yea, yea, Chief!" Hawkins yawned. "Hope you don't mind if I take a bit of a nap."

"If you do you'd better sleep with both eyes and at least one ear open," Brink warned him as he sniffed the outside air suspiciously.

"Smells like a drug store," he announced. "But I guess, if Al says so, it must be all right. Come on, Jimmy."

The spot where the rocket-ship had landed was on the side of Titan which was then facing away from the sun. But above the jagged peaks of the distant horizon nearly half of Saturn's bulk was visible. It looked like the head of a cosmic jockey, the portion of the tilted ring, which was visible, forming the elongated visor of his cap. Though the light was dim, it seemed to have a peculiar, penetrating quality.

Both Brink and Sullivan were equipped for flying, but they decided not to use their wings, deeming that they would be less likely to be seen if they kept close to the ground. They had not walked far when they were startled to see a beam of dazzling brilliancy leap out of the sky. The source of this light was a mystery, since there was absolutely nothing floating or flying in the air. When his eyes became accustomed to the glare, Brink noticed that the light was reflected against an upper stratum of the atmosphere, toward which it was projected from the distant city.

As if operated by a methodical, intelligent being, the beam of light swept back and forth across the valley. Apprehensive that this phonemenon signified danger, Brink whispered, "Let's beat it back to the ship, Jimmy!"

But they had scarcely taken three strides toward the forest, when the beam overtook them, drenching them in a stream of blinding light.

Grasping Sullivan by the wrist, Brink said hoarsely, "Hold it Jimmy. We won't gain anything by betraying where the ship is located. Maybe we can side-step the light."

But, though they jumped and ran and dodged in all directions, the ominous shaft of illumination followed them relentlessly and unerringly.

Then, as mysteriously as it had come, the light was extinguished. For a minute or two they stood there, wondering what would happen next. Meanwhile their nostrils caught a nauseating odor. It was like the smell of decaying vegetation—the fetid odor that comes from a pool of stagnant, polluted water. The source of this scent was not apparent to them until their dazzled eyes became once more accustomed to the semi-darkness. Then they discovered that they were surrounded by a surging band of ghostly, preposterous creatures.

Neither arms, legs, eyes nor ears did these weird beings possess, yet they seemed to be alert and attentive and capable of handling any situation that confronted them. Almost colorless—like great masses of untinted gelatin—their bodies were shapeless and transparent. At the center of each organism was a dark grey spheroid about the size of a large watermelon. Lobed and wrinkled, these cores of living matter were folded into thousands of squirming convolutions.

"Brains! That's what they are," said Brink in a hissing whisper. "Just great big brains with nothing but gobs of protoplasm to support them."

"To me they look more like giant amoebas," Sullivan contended. "What you take for brains, may be nothing but the nuclei."

"Maybe they are oversized amoebas," Brink conceded. "But those grey gobs inside them are brains, and don't you fool yourself."

As if bent on verifying the suppositions which both the Earthmen had voiced, one of the Titanians separated itself from its companions and flowed toward them with a charactistically amoeboid motion. When it had covered

half the distance, it stopped and a portion of its substance was pushed out to form a pseudo-podium or false limb. With a gesture that was unmistakably meant to be a polite but firm request, it beckoned for the two men to move in the direction of the city. At the same time the ring of strange creatures opened like a horse-shoe in front of them, while they surged slowly forward behind them.

"It seems to want us to follow it," Sullivan stammered. "Do you think we'd better obey?"

"Not unless we have to," Brink declared. "Let's get our wings ready."

AS he spoke these words and before he had time to unfurl the wing membranes which were wrapped around his arms, Brink was astonished to see a bulge appear on the upper surface of the Titanian leader. With uncanny speed it formed itself into what looked like a featureless head, which it proceeded to shake violently as if to say, "You had better not do that."

Paying no attention to this warning—if warning it was—the two space marines adjusted their wings, turned on their gravity-nullifyers, and soared heavenward.

Instantly the amoeba-like beings, which up to this time had moved slowly and sluggishly, hurled themselves into swift action. Flowing along the ground with incredible speed, they gathered momentum until with powerful leaps, they took to the air, their flexible bodies taking the form of giant flapping wings.

Soon the air was full of them and the two men found that they were being prevented from flying in any direction save two—downward and toward the city of cones.

Brink decided to return to the ground, hoping thus to gain time for concocting some strategem. But when he and Sullivan attempted to delay matters by seeming to yield, but walking with deliberate slowness, four of the Titanians approached them and thrust out from their bodies long, sinuous tentacles with which they reached out to seize their captives.

When he saw the snakey pseudo-podia whipping out toward him, Sullivan lost his head and drew his super-pistol. Though it weighed less than a kilogram, it was capable of spraying bullets with the speed of a machine gun and the power of an elephant rifle. Sullivan saw the bullets plainly as they thudded into the body of his opponent, but they penetrated only a centimeter or two before they were checked by the tough, resilient material of the Titanian's body. With horrified dismay he saw the creature press the bullets out from its skin, like a child spitting cherry-stones from its mouth.

One of the tentacles wrapped itself around the pistol and wrenched it out of his hand. Then he felt his arms seized in the clammy embraces of other pseudo-podia, which dragged him forward with irresistible force.

"It's no use, Jimmy," he said resignedly. "We may as well go along with them."

A Sinister Encounter

ESCORTED by a mob of squirming Titanians, many of whom had joined the procession *en route*, the two Terrestrial officers were dragged through the wide but tortuous streets of the village until they reached a building of medium size. A door slid to one side and the two men were shoved through the opening. Noiselessly the door closed behind them.

They found themselves in a room shaped like a segment of pie. At the inner angle of the chamber was one of those shapeless, transparent masses of protoplasm, which they knew to be a native of Titan. It was considerably bigger than any of the others they had seen and its central spheroid of wrinkled grey matter was correspondingly great.

Though it possessed nothing that resembled features or sense organs, the creature indicated by its change in position that it was conscious of their presence. From different parts of its body bulges appeared, protruding like the telescopic eyes of a lobster.

"He is giving us the once over," Sullivan remarked.

At the sound of his voice, the Titanian moved a trifle closer, as if striving to catch the words. Then it shot out several tentacles with which it explored the bodies of both prisoners at once. Stretched across a low frame in front of it was a strip of material resembling celluloid on which the creature scratched strange marks with a small, sharp instrument.

When the inspection was completed, the Titanian withdrew all its pseudo-podis into its body and the door opened again. Out in the street four guards awaited them. As they were being conducted still further toward the heart of the city, Brink said, "Well, there's one thing to be thankful for. Our rocket-ship is still safe. Maybe Al will be able to contrive some way to help us out of this mess."

As if to mock his words, an ominous hissing sound came from somewhere overhead. Looking upward, the two men were horrified to see their space ship hovering over the roofs of the city. It was not traveling under its own power but was held in the clutches of two claw-like instruments hanging from the under side of a strange airship. The Titanian craft was shaped like a regular polyhedron with fourteen faces.

Brink, who had majored in mathematics, knew the technical name of this figure. "It's a tetrakaidecagon," he told Jimmy. "These babies must know a lot about mathematics to be able to construct a ship of that shape. What do you suppose that hissing noise is? Doesn't it sound familiar to you?"

"It sure does. Sounds like the hydrogen escaping from the fuel tank. Maybe those dumb-bells opened the throttle without turning on the ignition."

"I'll bet that's what happened all right. And we need every cubic centimeter of that fuel to get back to Ganymede!"

"What do you suppose has become of Al?"

"They probably captured him like they did us. First thing you know, they'll be dragging him into town."

Just ahead of them they saw their rocket ship come slowly down until it rested on the pavement of a wide circular space where several of the streets intersected. Brink tried to dash toward it, hoping at least that he would get a chance to shut off the escaping fuel, but in this he was thwarted by his alert guards, who shot out long tendrils of protoplasm which wrapped about him and stopped him dead in his tracks.

Through a huge door of one of the largest of the buildings, the space flyer was carried inside. The Earthmen caught a glimpse of another space flyer, which they surmised belonged to the Valentine sisters. It had a ragged yawning hole in its side.

"Take a good look at that building," Brink whispered. "If we ever get loose, we'll want to know where our ship is located."

Since all the buildings looked exactly alike, except for

differences in size, this sounded like a difficult thing to do. But the task was made easy by a fortunate circumstance. The building to which the guards conducted the two terrestrial prisoners faced on the same plaza, only a short distance away.

"What do you suppose is going to happen to us now?" Sullivan inquired when they were confined in a small cell.

"Judging from our surroundings, I should conclude that we are to be placed on exhibition for the edification of the curious populace," was Brink's reply. The place certainly did look like a museum or a menagerie. Encircling the curved, tapering walls of the building were a large number of cells like the one to which they had been assigned. In the wall facing toward the center of the hall, each of them had a large window of transparent material punctured with oval holes about the size of hen's eggs. Many strange beings were displayed in these cells. Most of them were alive, but a few of them were stuffed or mummified.

The middle of the room was occupied by a bewildering assortment of pipes and tubes and vessels of grotesque shapes, which looked as if they might be scientific equipment. They were separated from the rest of the room by a low railing. Between this and the cells, scores of the Titanian amoeba-men flowed from one exhibit to another, seeming to study the curiosities with comprehensive but eye-less wonder.

"Well," Brink remarked. "If we are supposed to be putting on a show, let's give them a song. I'll sing baritone and you carry the tenor." Thus they sang lustily:

> Oh, Captain Jinks, the space marine
> He drank a quart of gasoline;
> And since that time he aint benzine—
> He's now a piece-ful figh-tur

Drawing in long breaths, they were about to repeat this nonsensical ditty when they were astounded to hear a voice that was unmistabably human and unmistably feminine. "What-ho! You Earth-men! Who are you-all, anyhow?"

From the direction of the sound, Brink inferred that the invisible person who had spoken was in a cell only a few meters away from theirs.

"Good morning!" Brink cried. "My companion, who sings such a vibrant tenor, is Lieutenant James Sullivan of the Earth Republic Space Navy. My name is Captain Frank Brink. I suppose you must be one of the Valentine twins. Is your sister there with you?"

"Yes. We are both here," said two voices in unison.

"We were sent out to rescue you," Brink informed them. "So far we have succeeded in getting captured ourselves. What do you know about these Titanians, anyway?"

"They are horrid," one of the young ladies replied. "Can't you do something to get us away from here? We're afraid for our lives."

"It doesn't look to me as if we are in any immediate danger," Frank assured her. "Since we seemed to be regarded as freaks, they will probably keep us alive indefinitely."

"Don't be so sure of that. Those creatures are bad, I tell you. You should have seen what they did to Omar."

"Omar?" Brink exclaimed. "Who in the Universe is Omar?"

"Our mascot. He was——"

"The darlingest Persian kitten you ever saw," the other girl interrupted. "We've taken him with us on all our trips. He has been all over the Solar System."

"What happened to him?" Sullivan wanted to know.

"One of those unspeakable brutes nailed him to a board and cut him all to pieces. He did it right in front of our eyes!"

"It was horrible!" the other girl resumed. "Poor Omar screamed so pitifully!"

"You mean they vivisected your cat?"

"That's exactly what they did. And I believe they are planning to do the same thing to us. Help!"

"What's the matter?" Brink cried in an alarmed voice.

"One of the Titanians just grabbed Vera," said a voice which Brink assumed to be Velma's. "It is wrapping its nasty tenacle around her mouth so she can't—Oh! Now it has me!"

"Miss Valentine!" Brink yelled. "Are you two all right?"

In a smothered mumble came the words, "Don't worry about us. They are only trying to gag us. Perhaps we'd better quit talking for a while."

"That sounds like those Titanians can hear us talk," Sullivan whispered to Brink.

"No question about that. And—what is more important—I'm convinced that they are highly intelligent and can understand what we say."

"Nonsense!" Sullivan scoffed. "Those amoeba-things intelligent? Why they are nothing but great blobs of protoplasm!"

"So is the human brain nothing but a big blob of protoplasm. Even the lowest type of microscopic amoeba has a rudimentary brain. Biologists call it the nucleus. There's not much to it, but when the nucleus is removed, the amoeba cannot envelope and digest its food in the usual way. For all we know, the nucleus of the tiny amoeba might have developed into a sentient, thinking brain, even more wonderful than ours."

"Sounds mighty fishy to me," was the doubting response. "I always thought that highly developed mental powers were associated only with organisms that are highly developed physically—organisms that have heads and legs and other members. These Titanian babies don't seem to have anything but great big gobs of shapeless goo."

"Nevertheless, these amoeba-men, simple as their bodies are, seem to possess powers that make them far superior to use physically as also mentally. If a Titanian needs an arm, he can manufacture one instantly from the substance of his own body. And he can make it as long and as thick as he requires to accomplish the particular purpose. In the same way, he can produce as many legs, feet, hands and tentacles, and even wings as he needs, whenever he wants them. And in this respect, he isn't much more talented than the most primitive amoeba, which can transform any part of its substance into pseudopodsa, exactly suited to grasping and devouring its prey."

"Do you mean to tell me that amoebas can fly?" Sullivan exclaimed.

"Not that I know of," Brink laughed. "But of this I am sure: If they wanted to, they certainly could produce wing-like protuberances and manipulate them like these Titanians do when they fly. Talk about being mere blobs of protoplasm—why they are better developed and far more efficient than we are!"

"Maybe so. But a minute ago, you suggested that

they may be able to hear what we say and know what we are talking about."

"I don't think there is any doubt of it," Brink declared.

"Do you mean to say that those bozos can understand English."

"Not word for word, of course. But I wouldn't be a bit surprised if they could read our thoughts."

"You mean by mental telepathy or something like that?"

"Yes. Something like that. Take that chap out there in front of our cage, for instance. Doesn't his attitude suggest attention and intelligence?"

"To me, he's just a bowl of applesauce turned upside down."

Even as Sullivan spoke these words, the shapeless heap of jelly elevated itself and swayed in the direction of the two Earth-men.

"See there!" the captain cried. "Doesn't that look as if he understood what we said? Not only that, but I have the most peculiar feeling that he is trying to communicate with us. How about yourself? Don't you have a sort of funny mental impression, such as you have when someone is looking at you from a distance?"

"Now that you mention it, I *do* have some peculiar mental impressions. Darned if I can interpret them, though."

"I think I can," Brink asserted. "Unless the telepathic signals are haywire, that Titanian out there is trying to ask us where we came from. Just for the fun of it, I'm going to see if I can carry on a conversation with him."

Then, addressing himself to the formless creature who was squatting on the floor, like an enormous wad of chewing gum, Brink said, "We came from Ganymede, my friend. But our original home is on earth."

The Titanian swayed, as if to indicate that it had received the message. Then, without any sound being uttered, Brink imagined that this thought came into his mind. "These are only your own names for these places, oh stranger. Tell me, do you come from a land that is warmed by the same sun as ours, or is this place you call Ganymede in some other system?"

"Did you get what he said, Jimmy?" Brink whispered.

"I think so," Sullivan replied. "He wants to know if we belong in the same solar system as Saturn."

"Those are not the exact words as I got them," Frank told him, "But the thoughts I received were almost identical with yours."

Resuming his "conversation" with the Titanian, he explained: "Ganymede is the largest moon of the largest planet in the solar system. Do you understand now?"

The thought-answer was, "I understand perfectly. And where is this place you call earth?"

"It is a planet—the third one from the sun."

WHILE the Titanian was getting ready to propound another query, Brink said, "Listen, Jimmy, I believe I'll turn the tables on that chap and do some questioning on my own hook. Maybe I can pump some valuable information out of him."

"A good idea," Sullivan agreed. "Go to it."

Moving forward a step or two, Brink asked, "Are you a male or a female?"

The Titanian indicated that he did not understand this.

Brink tried to make it clear to him:

"The people on earth, as well as most of the animals that live there, are divided into two sexes. We call them male and female. Both of us in this cell are males. The two persons in that other cage down there are females. Do you comprehend now?"

"Yes," came the answer. "But here we have no sexes."

"Then how do you multiply?"

Although Brink's knowledge of biology helped him to anticipate the reply, he was nevertheless astonished when this message came into his mind: "We propagate by division. Any adult can divide itself into two smaller but complete parts whenever it wishes. Watch me and I'll show you how it is done." And right there, in that public place, the creature squeezed itself in the middle until it looked like two balls of jelly stuck together. Through the transparent substance of the amoeba-man, Brink observed that the greyish nucleus, which he assumed to be the brain, was also cleaving apart. In less than a minute, each of the two separate brain portions had moved to the center of its half of the protoplasmic material and what had before been one organism became two.

"Remarkable!" Brink exclaimed. "And now can you reverse the process? Can you join yourself together again?"

The answer was: "No! That is impossible. Now that I have divided myself, we must remain as two separate individuals. Each of us is now a child, but we will soon grow to maturity."

"Do you ever fight with each other?" Sullivan wanted to know.

"You mean my brother and me?" As this message came through, one of the newly formed entities extended a pseudo-podium and pointed to his companion.

"I mean do any of you Titanians ever fight among yourselves."

"Nothing like that has ever happened so far as we know."

"Don't any of you ever die? Isn't it possible for you to be killed by one of the other inhabitants of this city?"

"I don't see how that could be."

"Isn't there any kind of weapon or projectile or missile that can cause the death of one of you?"

"What you call weapons, such as knives, projectiles and missiles, cannot harm us in the least. There is only one thing of which we are afraid and that is——"

Just as a telephone conversation is cut off when the operator pulls out the connecting plug, so the important message which the Titanian was about to impart was interrupted abruptly.

With their bodies trembling in a way that plainly indicated intense fear, the two creatures who had been so accommodating in giving information, slid rapidly out of the building. Their place in front of the cell was taken by another of the amoeba-men. Because of its unusual size, as well as some other individual peculiarities, Brink thought he recognized this one as the Titanian who had inspected them in the first building they had entered.

If you can imagine a shapeless mass of gelatinous protoplasm registering anger, then you will have a clear picture of how that creature looked as it reared up and rocked itself back and forth.

"The old boy seems to be slightly peeved," Sullivan remarked.

From the direction of the Valentine Sister's cage came these softly spoken words, "That's the beast that cut up poor Omar."

"Shut up or I'll gag you again—this time permanently!"

Both Brink and Sullivan received this message clearly. Apparently Miss Valentine did also for she murmured in a terrified voice, "All right. Just leave me alone and I'll keep still."

The next thought impression which came into their consciousness was: "Why did you come here?"

Concluding that a truthful answer was as good as any, Brink replied, "Our mission is a peaceful and a friendly one. We were sent to bring back the two earth-women, who wish to return to their home. Neither they nor we have any intention of injuring your wonderful world or any of its inhabitants. Won't you please let us go back where we came from?"

"What you ask is impossible. Whether or not your intentions are friendly, I cannot risk permitting you to return. Who knows but that you may come back with large forces to rob and murder my people?"

"I'll swear to be personally responsible for preventing anything like that from happening."

Brink imagined he almost heard a peal of scornful laughted as into his consciousness came this: "What good is the oath of an inferior animal like you? And, besides, I have another reason for wanting to detain you. I am a scientist and I am very much interested in the structure of your bodies. In the interests of science I consider it my duty to investigate you thoroughly."

"You mean you intend to cut up our bodies while we are still alive?"

"Certainly. Why not?"

"If you do anything like that, you will regret it," Brink threatened. "Our earth-people are very numerous and powerful. We belong to an organization which always protects its members, wherever they may be. It is absolutely relentless in punishing its enemies."

"Now you are showing your true colors. A moment ago, you said you were friendly. Now you threaten us and call us your enemies."

Brink realized that he could not hope to bluff this super-intelligent being. He decided to keep quiet.

But the flow of thought impulses from the Titanian leader continued to pour into his mind.

"You are right in concluding that there is no use in trying to dissuade me from my purpose. And now I must go and make preparations for my experiments."

He glided oozingly into the central part of the room and began to busy himself with some of the apparatus there.

"Do you suppose he is going to start operating on us right away?" Sullivan asked Brink in a husky whisper.

Before Frank could reply, he received the mental assurance all four of the earth-people would be safe until the following morning.

Outwitting The Amoeba-Men

AFTER a few hours, which seemed intolerably long to the two men as they sat on a heap of straw-like refuse in their narrow cell, the Titanian scientist forsook his levers and coils and flowed silently out of the building. As if this were a signal, the rest of the occupants of the place slipped through the door and were not replaced by others. Finally, only one of them was left. Extending two pseudo-podia, he pushed the door shut and fastened it by knotting together three pairs of rope-like fibers. With the slinking, flowing motion that was characteristic of the amoeba-people, it propelled itself around the ring of open space between the cells and the laboratory equipment.

"That blurb seems to be the night watchman," Brink remarked, as he looked at his watch and made note of the time.

Having made one circuit of the building, the Titanian guard plopped through a trap-door in the floor, which slammed shut behind him. Later on, he emerged again, circled the room and retired.

Brink took another look at his watch.

"Twenty-seven minutes," he announced. "That ought to give us plenty of time."

"Plenty of time for what?" Sullivan wanted to know.

"To escape, of course."

Already Brink had decided there was no use trying to force the heavily reinforced door at the rear of the cell. The side walls appeared even more formidable, being formed of a stone-like material as thick as a man's body.

Thrusting two fingers through one of the oval openings in the display window, he gave the large pane an experimental shake. It yielded slightly like a wooden board.

Responding to this suggestion, Sullivan opened his jack-knife and tried to cut into the transparent material. The edge of the blade turned without making the slightest impression on the window pane.

"It's as hard as glass," he muttered. "Perhaps I can kick a hole in it with my heel."

"'Fraid it wouldn't work," Brink disagreed. "That stuff seems to be flexible. And even if you could kick a hole in it, you would make so much noise that you'd bring the whole population of Titan about our ears. I think I have a better plan."

Brink's plan was simple enough. On his finger he wore a diamond ring. It didn't take him long to ascertain that with this jewel he could easily make a deep scratch on the glass-like substance. In a few minutes he had produced a neat, circular crack in the window and had gently removed a portion of it large enough to permit the passage of a man's body.

"You stay here," he whispered, "so you can fool the watchman if he makes the rounds again before I get back."

Crawling through the opening, he stole softly to the place where he knew the Valentine sisters were located.

When they saw him at their window, they were so startled that they both shrieked. Brink heard the hinges of the trap-door creak. There wasn't time enough to return to his cell, so he leaped the railing and hid behind one of the pieces of laboratory equipment.

Fortunately the watchman did not see him, nor did he notice his absence from his cage. With a sharp thought-command to be quiet, the Titanian crept back into its retreat.

For thirty breathless seconds, Brink waited. Then he said in a stage whisper, "For the love of gravitation, Vera and Velma, control yourselves until I can get over there and release you."

With his diamond, he quickly made a hole in the window of the girl's cell. One of them started to crawl out, but he gently pushed her back.

Replacing the disk in the hole, he said, "Here, Vera or Velma, whichever you are, hang onto this so it won't fall out. You'd better stay right where you are until I get the outside door open."

He tiptoed to the portal and attempted to cut the fastenings with his knife. This wasn't as easy as he expected, for the material was as tough as copper wire. It took him so long to sever the bonds that he cast several apprehensive glances at his watch before he was through.

As he passed the two girls on his way back to his own cell, he whispered, "Hold everything until the guard makes the rounds again. Then we'll scramble.

Then he crawled inside his cage and replaced the disk which he had cut out of the window. As he sat waiting for the watchman to reappear, his fingers ran nervously through the heap of queer-looking plant stalks which had evidently been put there for bedding. He picked up a large tuft of it and screwed it into a compact twist.

"By Universe!" he exclaimed. "Now there's an idea! Here, Jimmy! Help me twist this straw into bundles, will you?"

"What do you expect to do with that stuff?" Sullivan wanted to know; but Brink said cryptically, "Never mind what they are to be used for until the time comes to use them. But while you are twisting them, please pray that my scheme will work."

A few minutes later, after the Titanian had slithered once more around the room and had crept back to the cellar, Brink, with a large bundle of twisted fiber under his arms, led his three companions out into the deserted plaza. Keeping close to the buildings, he hurried to the edifice which he knew housed the two rocket-ships.

Assuming that this door would be fastened in the same way as the other one, he ran his knife along the crack until it encountered something hard. He directed Sullivan to locate a similar obstruction closer to the ground. In feverish haste they sawed away at the fastenings until their blades grated through. To reach the third bond, it was necessary for Brink to stand on Sullivan's shoulder.

Hardly had he severed it and carefully slid the door open when a powerful impulse shocked his consciousness. It was like an ear-piercing scream, although not a sound was audible.

Brink turned and was horrified to see the watchman oozing swiftly toward him. At the same instant, one of the girls gave a cry of alarm and Frank wheeled to find himself confronted by another Titanian, who evidently had been on guard over the space-fliers.

Brink snatched up one of the twists of straw, struck a match and set fire to the improvised torch.

"Here, Jimmy! he cried as he ignited a second torch and thrust it into Sullivan's hand. "Take this and help me drive those two brutes back into the building."

WITH a running leap, he hurdled the first Titanian, thus getting behind him. Then he thrust the brand toward the amoeba-man, who shrunk trembling before it.

"I thought so!" he yelled triumphantly. "Those bozos have never seen fire before. Like all animals except man, they are afraid of it! Don't let them get away, Jimmy! Chase both of them into the building."

When the four humans and the Titanians were all inside, Brink shut the door behind them. With Sullivan's help, he forced the two amoeba-men into the cellar of this second building and pulled a heavy, grotesquely fashioned table over the trap-door.

"You had better stand guard over the door, Jimmy," the captain commanded. I'll go and see what condition the ships are in."

He went first to the craft belonging to the Valentine girls. One glance convinced him that it was beyond repair.

"How were your fuel tanks when you landed here?" he asked Vera.

"They were over half full—plenty to carry us back."

"I'm afraid our tanks are empty," he affirmed. "Perhaps I can replenish them from your supply."

At that moment the large outer door slid open with a rumble like thunder. In the opening a threatening, sinister throng of Titanians milled and surged. The front ranks had scarcely crossed the threshold when Jimmy, with a flaming torch in his hand, was driving them back.

Brink ran to help him, but the plucky lieutenant waved him back.

"I can take care of these brutes. You'd better get the girls into the flyer and see if you can replenish our fuel tanks."

Realizing the wisdom of this advice, Brink entered the girl's flyer and examined the fuel gauge. Consternation gripped him when he saw that it registered zero. He tested the gauge and found it was working properly. Even when he opened the throttle wide, there was no hiss to indicate that gas was escaping.

Sweat was dripping from his forehead when he came out and faced the ladies.

"Sorry, girls," he faltered. "Your tanks are empty too. It looks as if we were done for."

"Please don't give up yet," Velma pleaded. "Perhaps you have enough fuel left to reach some remote part of Titan. There's always a chance that we'll be saved by another rescue party."

"All right," Brink muttered. "Climb in."

When he took a look at his own fuel gauge, he let out a cry of astonishment: "That's funny. According to this indicator, our tanks are five-eighths full. I am sure I didn't have anywhere near that much fuel when I landed."

"Maybe Santa Claus came last night and filled your tanks," Vera suggested.

"By Universe! It *is* Christmas day today, isn't it? With all the excitement, I forgot all about it. Take a look and see how Jimmy is making out, will you?"

She stepped to the window and reported: "He seems to be holding them but they are creeping closer to him. Great heavens! He has used up that whole heap of torches! And the one in his hand is burnt down almost to his fingers."

"That means we'll have to move fast," Brink shouted. "Velma, run to the door and yell for Jimmy to beat it into the ship. As soon as he gets inside, shut the door and bolt it."

"Can't you give me something to do?" Vera begged.

"Sure! Take this box of matches. In case any of the beasts are too close to Jimmy to get the door shut, light some of the matches and drive them back."

The matches were not needed. As soon as Sullivan heard Velma's call, he made a phenomenal sprint for the ship. Caught by surprise, the Titanians did not reach the flyer until Jimmy was safe inside with the door bolted securely.

But before Brink had time to start the gravity nullifiers and to turn on the rockets, scores of the creatures had swarmed over the outside of the ship, weighting it down with their great bulk.

In spite of this handicap, Brink succeeded in maneu-

vering the flyer slowly through the open doorway. Out in the open air, the ship was engulfed by hundreds of other Titanians, who flew around it and clung tenaciously to its surface, flapping their bodies madly in their efforts to hold the ship back.

Due to the extra weight and to the terrific resistance which the bodies of the amoebas caused, the rocket-ship was hardly able to keep in the air.

By using the full power of both rockets and gravity-nullifiers, Brink managed to keep on going until the ship was directly over the middle of the lake.

"Here's hoping that the water is deep," he murmured, as he turned the nose of the craft downward and switched off the nullifiers.

Down plunged the ship at a sharp angle. The pointed prow stabbed the water, sending a geyser of spray into the air. Like a fish-hawk, the great hull dove into the lake, sending the Titanians flying in all directions.

When it bobbed to the surface, it was halfway to opposite shore. Brink turned on everything. With a roar of flaming exhaust, the space-ship shot skyward.

The Missing Comrade

WHEN they were well outside of Titan's atmosphere, Brink shut off the rocket tubes and steered the ship around the satellite in a wide circle.

Surprised by the sudden stillness, Vera Valentine exclaimed, "What's the matter, Captain? Something wrong with the exhausts?"

"Nothing like that. But I don't want to get too far away from Titan."

"What in the Solar System are you talking about? Don't you think we had better be on our way before those funny looking space-ships overtake us?" As she said this, she pointed to a large fleet of bizzarre polyhedrons which were swarming upward like angry bees from an overturned hive.

"No danger from them, so long as we keep outside the atmosphere," Brink informed her. "I had a good look at one of them yesterday. They are just aircraft. They are not built for space travel."

"Perhaps you are right. But even so, what's the idea of loitering?"

Like a school master addressing a stupid pupil, Brink explained, "The idea is that a space marine never deserts a buddy." Then, remembering that Miss Valentine knew nothing about the disappearance of Captain Hawkins, he hastened to apologize. "I beg your pardon. You see, when we landed on Titan there were three of us. The other fellow, Captain Hawkins, is back there somewhere. Perhaps he's dead. Perhaps he's in danger. Perhaps he is safe. Whatever the answer is, it is up to us to go back there and find him."

"You mean you intend to go back there and risk getting caught again?"

"There's nothing else I can do. But I have tried to plan things in such a way that nobody but me will need to take any serious risk. As soon as the Titanians have calmed down and it gets dark enough to land near the city without being seen, I intend to turn the controls over to Lieutenant Sullivan. He will drop me off on Titan and will immediately take off again and wait for me out here. I shall arrange to signal him as soon as I succeed in locating Captain Hawkins. Then he can come down again and pick us up. In case he doesn't get my signal within a reasonable period of time, his instructions are to take you two girls back to Ganymede. In the meantime, I suggest that you and your sister had better get some sleep. You'll find hammocks and blankets in the storage compartment."

With a gallant bow, Lieutenant Sullivan opened the door in the bulkhead and motioned for the two women to enter.

An instant later he was startled by two terrified screams and the girls came tumbling out of the storage chamber.

"Oh!" one of them cried. "There's something in there! It's one of those horrid Titanians. I saw it move."

Before the words were out of her mouth, Sullivan had slammed the door and clamped it fast.

"No use, Jimmy," Brink told him. "All our supplies are in there—food, water, oxygen—nearly everything we need. We'll either have to kill that bozo or tie him up."

"No use trying to capture him," Sullivan moaned. "Those babies can twist their bodies into any shape they want to. You might as well try to tie up a puddle of water. And, as for killing it—you know darn well what happened to the bullets from my super-pistol."

"Everything you say is true, all right," Brink admitted. "But perhaps we can figure out some way. Let we think.

Obligingly, the other three held their breaths while Brink thought. The tense silence was broken by a noise. To the Valentine sisters it sounded like the growl of a ferocious animal—although they must have known that the Titanians never made any sounds.

But to Brink and Sullivan, that noise was as familiar as the roar of their rocket tubes.

"Al!" they both yelled. And Sullivan added, "If that isn't Al's snore, I'll eat my nullifier."

Deserting the controls, Brink followed Jimmy as he dashed into the storage compartment. There, completely covered by a blanket, a shapeless form heaved up and down as the hammock swung to and fro.

As gently as a mother inspecting a sleeping infant, Sullivan drew back the blanket, exposing the pink, angelic countenance of Captain Hawkins. He was about to shake the sleeper, when Brink caught his arm and held a finger to his lips. Picking up a drinking tube, he held it high above the sleeper's face. With a squeeze and a shake he forced out a big globule of water. Like a sparkling bubble it floated slowly downward until a formed a fluid mask, completely covering Hawkins' face.

With much gurgling and coughing and waving of arms, Captain Hawkins awoke and gazed with bewildered eyes into the faces of his two comrades.

"What—tha—what tha!" he sputtered. "Can't you even let a guy sleep in peace?"

"You don't mean to tell we you've been sleeping here since we left you to guard the space-ship?" Brink exclaimed.

"Before I answer that silly question, suppose you tell me where we are."

"We're out in space, about a hundred kilometers from Titan. And these are the Valentine sisters. Jimmy and I found them and got away in the space ship. We were just preparing to go back to Titan and hunt for you when the ladies discovered you and mistook you for a giant amoeba."

"Really?" Hawkins said in what was meant to be a

sarcastic tone. "And you blinking smart-Alecks had the nerve to ask me if I have been sleeping all this time! Say: Who do you think replenished the fuel tanks?"

"We thought it was Santa Claus," Brink declared solemnly.

"Don't tell me you did it."

"Sure I did it. When the Titanians sneaked up on me, I happened to be in the storage chamber. They were all over the control cabin before I had time to do anything. I thought the best thing to do was to hide. So I got inside a sack and tried to look like some hectoliters of beans. Lucky for me they didn't find me. But they must have monkeyed with the valves and let all our fuel escape.

"When they had all gone away, I sneaked out and discovered that they had moved our ship into a building where there was another space-flier. In the dead of night, I shifted the tanks. It was a dickens of a job. I got so blooming tired that I crawled into a hammock for a bit of a nap."

The girls greeted this recital with a chorus of laughter.

"Surely," Vera giggled—"surely you don't mean to tell us that you slept all through that hullabaloo while we were diving into the lake, playing submarine and shaking off the Titanians."

"Nothing remarkable about that," Sullivan declared. "At least to anyone who is familiar with Captain Hawkins' sleeping proclivities."

Brink was busy at the instrument board. He slowly opened the throttle and headed the ship toward the colorfully brilliant star which he knew to be Jupiter.

When he had set the course he called to Hawkins, "Here, you lazy, somnolent lout. Come here and take the controls. The rest of us have some important business to attend to."

"Business?" Hawkins questioned. "What kind of business?"

To which Brink replied with a significant grin, "Business that we hope will be both pleasant and profitable. It is about time Jimmy and I got acquainted with the Valentine sisters."

THE END

The Finger of the Past

(*Continued from page 707*)

of a fur coat you want. And, would you like to—would you like to go to Peacock's and pick you out a ring, an engagement ring?"

By way of reply, she threw her arms about Buffum's neck and buried her face in his shoulder. In order to address Oliver, Buffum had to bury his neck and chin in her tousled hair.

"Oliver!" he said. "Ah—hrrr! You young scamp, from now on you are manager of the publicity department. Do you hear? And Regina, I can see business coming in again; so you may have that new airplane you've been wanting so long.

THE END

The Man Who Lived Twice

(*Continued from page 721*)

And so, the slow parade of stars and earth and moon faded and died. I had come to the end of my first adventure.

When I awoke again, I was back in the laboratory on a deep pile of cushions in the centre of the triangle formed by the three vacuum tubes. The professor was bending over me anxiously. My strength had returned. I felt my chest—no bullet hole there. I grinned up at him and reported: "Your theory is correct. I have been to the year 8117 A. D—seen machines utilizing the energy of the atom—but died before I could get the secret. Got darn close to it, though."

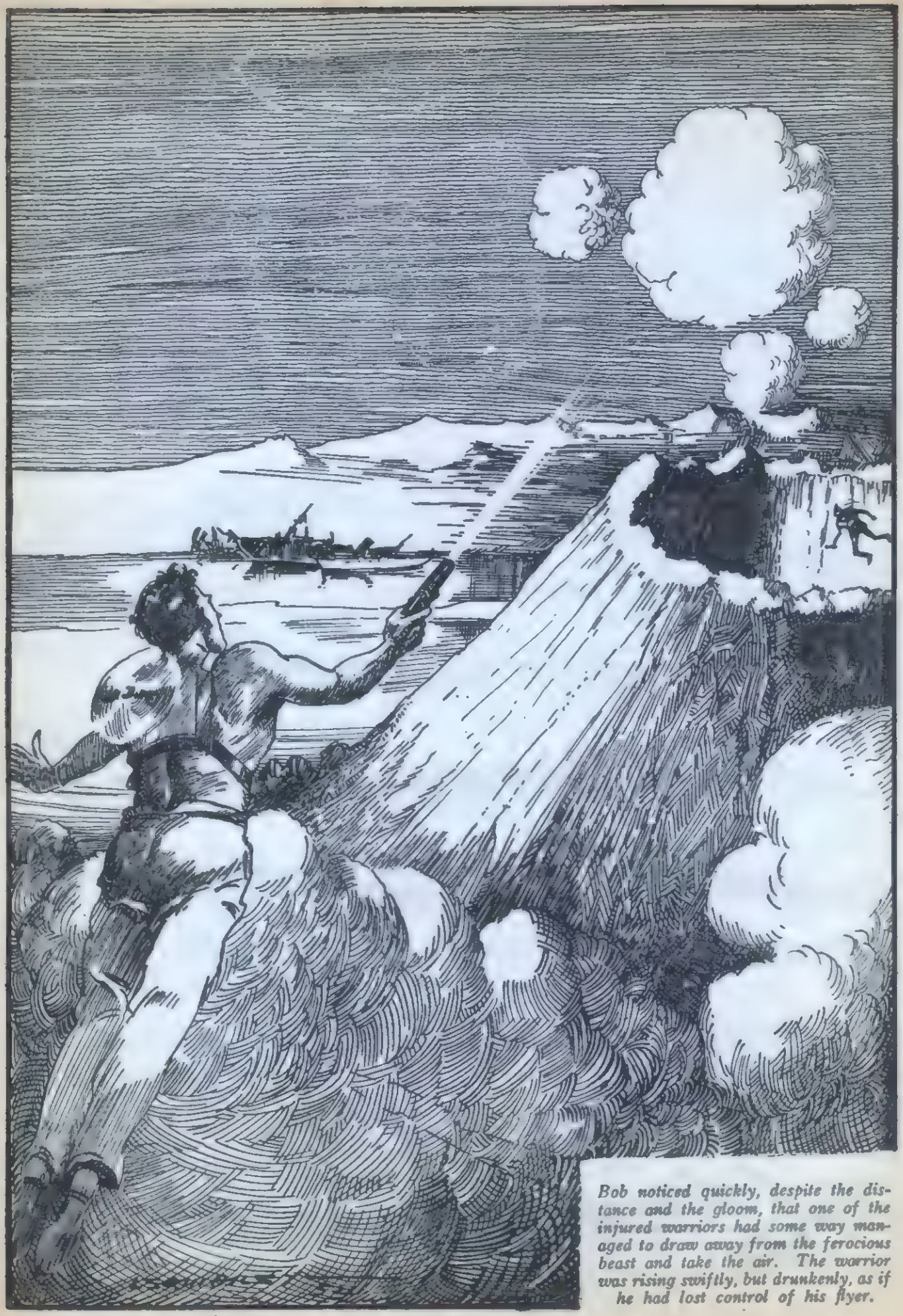
THE END

What Do You Know?

READERS of AMAZING STORIES have frequently commented upon the fact that there is more actual knowledge to be gained through reading its pages than from many a text-book. Moreover, most of the stories are written in a popular vein, making it possible for anyone to grasp important facts.

The questions which we give below are all answered on the pages as listed at the end of the questions. Please see if you can answer the questions without looking for the answer, and see how well you check up on your general knowledge of science.

1. What is the name of the great palace, the fountain head of the Tibetan religion? (See page 693).
2. Can there be a variation in rate of passage of time and how is it shown? (See page 710.)
3. What is the most accurate available clock (time measurer) known? (See page 710.)
4. What horsepower is expressed by twenty million kilowatts? (See page 712.)
5. What is matter considered to be? (See page 713.)
6. Give an example of graphic control of an airship. (See page 718.)
7. Name three large satellites of the planet Jupiter. (See page 722.)
8. How could the planet Jupiter be recognized? (See page 722.)
9. Name a fourth satellite of Jupiter. (See page 724.)
10. Name the sixth satellite of Saturn. (See page 724.)
11. Which is the largest satellite of Saturn? (See page 726.)
12. How many moons has Saturn? (See page 727.)
13. What is the nucleus of an amoeba? (See page 728.)
14. How would one recognize volcanic action if the ground was warm to the touch? (See page 745.)
15. What might we anticipate as the cause of heated ground under foot? (See page 745.)



Bob noticed quickly, despite the distance and the gloom, that one of the injured warriors had some way managed to draw away from the ferocious beast and take the air. The warrior was rising swiftly, but drunkenly, as if he had lost control of his flyer.

World of the Living Dead

By Ed. Earl Repp

Author of "The Second Missile," etc.

OBVIOUSLY, there seems no reason to suppose that there might not be some form of life—even intelligent life—beneath the surface of the earth. Several theories have been propounded on this subject by those who made some serious, interested study. Until anything definite is proved, one theory is as good as another. It seems to us just a question which is the more exciting—and plausible. Earl Rapp's ideas on this subject are convincing—and make a very good story.

Illustrated by MOREY

CHAPTER I

IT was evening when the hurricane struck. Lashing the West Indies seas into a mad fury, it came suddenly out of the south, hurling itself upon the big power yacht, *Scienta,* like a miasmic demon. Wind howled through her taut rigging in the appalling tones of a tormented soul.

To Dr. John Marsden, scientist, explorer and owner of the big craft, supporting himself in the pilot house with a leg and an arm wrapped around a stanchion, it sounded as if the devil himself had suddenly popped up out of hell to strum a song of doom on the yacht's dripping halliards and shrouds.

On the *Scienta's* heels, reaching out for her with murderous intent, a waterspout sped with a droning hum that was fast increasing to a steady, hollow roar. In a frenzied effort to avoid having the craft smashed to kindling under his feet, Captain Norton, at the wheel, signaled the engine room for full speed ahead.

The *Scienta* drove herself into the rushing seas until her figurehead bit deep in foam. She climbed a giant, simmering green comber and swept dizzily into a boiling trough.

The awnings, stretched tight over her decks, suddenly burst with the roar of a bomb to fly ahead in long ribbons of white gossamer. The waterspout tore along in the wake of the careening craft, churned brine at the base of its ominous column, gray and roaring with bitter menace.

Again and again the *Scienta,* in her mad effort to escape the spout, buried her figurehead under the boiling seas. Rushes of seething brine swept waist-deep over her main deck. She shook herself gamely life a half-drowned dog and almost stood upright on her fantail as she raced up the side of a green mountain.

Then the roaring spout overtook her. It struck her a mighty, but glancing blow across the stern. The wheel suddenly spun from the captain's hands. The yacht shuddered and groaned. Her plates creaked threateningly. Her decks went awash clear to the top of the rail. The spout broke and thundered past into a raving sea, leaving the battered craft floundering in white foam.

Somehow the *Scienta* shook herself free of the smothering embrace of the sea. It seemed as if eternities had passed before she rose clear and her main deck once more became visible from the pilot house through the driving rain.

Dr. Marsden clung desperately to the stanchion, his sun-dyed face the color of aged alabaster. A look of fear sprang suddenly into his gray eyes, when Captain

Norton span the wheel and stepped back in dismay.

"The rudder!" he barked at his employer through ashen lips. "It doesn't respond to the helm! Hell's bells, Marsden, the spout smashed the steering gear!"

"Good Heavens!" groaned Dr. Marsden. "Why we'll go down in a sea like this, helpless without a rudder!"

"Sure as you're alive!" replied Norton, giving the wheel a hopeful, but futile spin.

The First Officer, arrayed in dripping oilskins, fought his way up a lee companionway, forced open the pilot house door and entered amid a gust of howling wind and spray. His face was white about the corners of his tight-drawn lips.

"We've sprung a whale of a leak, sir!" he reported to Dr. Marsden, shouting to make himself heard above the roar of the storm, and ignoring the captain. "The forward hold, housing the animal specimens, is filling fast. I've got every available man at the pumps between decks. Two of your jaguars and the black python have broken loose from their cages. The snake is curled up in the corner brackets and the cats are perched on top of the highest cages. Hell is breaking loose down there, sir. The beasts are fighting to get loose, for a chance to live and the men at the pumps are getting scared. Any orders, sir?"

Captain Norton gave the wheel a significant spin. First Officer Bob Allen's face went a shade whiter around the gills. A look of alarm swept into his fearless, steel-gray eyes.

"Good Lord, Norton!" he exclaimed. "Are we adrift in this hell-bending blow—without a rudder?"

Captain Norton shook his head like a man in a trance.

"We've either lost the rudder or the spout smashed it, Allen," he cried, in a shaking voice. "Unless we can repair it or rig up a jury rudder, we'll wallow in these seas till we sink!"

Bob Allen braced himself against the frenzied pitching of the *Scienta* and scowled. He was a tall, lean-waisted, broad-shouldered young man in his late twenties, with a square, firm jaw, strong, determined lips and a personality that made him more than welcome in the palatial household of Dr. Marsden, when the *Scienta* was tied up at her private dock in New York Harbor.

Any timidity, he might have had toward danger in his earlier years, had been knocked out of him at Annapolis. The Navy gridiron had hardened his muscles; made a real fighting man of him. After his graduation with top honors, two years at sea, first as an ensign and then as a lieutenant in the destroyer and submarine fleets, had rounded him out for the task of living the hard life of the deep water man.

Then he had voluntarily resigned from the service, finally yielding to Dr. Marsden's urge to become First Officer of the *Scienta*, to automatically take over the captain's berth when Norton's contract expired.

But there had been more than the prospect of a captain's berth and gold-braid to entice Bob Allen into accepting the offer. Service routine had been proving rather dull for him. He liked to be up and doing; going places and seeing things. He craved action and adventure. The *Scienta* offered all that his restless nature craved.

AND there had been something else, too, perhaps the most important of all, that had lured him into a berth on the yacht. That was Patti Marsden, adventurous, lovely daughter of the doctor. He had made Patti's acquaintance at a colorful Annapolis prom. and had thrilled at holding her in his arms.

She had been the most popular débutante at the dance. As he whirled her supple, trim body around the floor, he had noticed looks of envy in the eyes of his mates, who waited in vain for him to give her up. Bob Allen fell deeply in love with Patti Marsden at the prom., so deeply in fact that he would have resigned from the service a thousand times to be near her.

When Dr. Marsden sent for him and outlined his offer, Bob Allen rather hoped that Patti had had something to do with it. But in time he brought himself to believe that he had no right to hope for that, for Patti Marsden was the object of Captain Norton's attentions and apparently, he decided, she had no objections.

This discovery had naturally brought him to wonder just how Captain Norton would stand in the Marsden household when his contract expired. But Bob Allen had already signed on the *Scienta* before he made his discoveries with regard to Patti and Captain Norton, and had been too much of a man to back out; too much in love with her to show that he cared to that extent.

He hadn't liked Captain Norton from the start. Perhaps the reason was the deep-rooted jealously that had suddenly sprung up within him.

Captain Norton, a heavy-set, rather handsome man of thirty-four or five, had seemed so self-important; so utterly cool and indifferent to even an Annapolis graduate. He had displayed his dislike for Bob on several occasions by petty methods and particularly resented the Lieutenant's apparent poaching on what he, Norton, considered his own private preserve. The dislike had become mutual almost from the beginning. It had grown deeper in Bob with Norton's evident carelessness in handling the *Scienta* in the hurricane-infested West Indies seas.

With the grim air of a starving man tightening up his belt in defiance of his hunger, Bob looked squarely into Captain Norton's ashen face and thrust his chin forward belligerently.

"Do you mean to say, Captain Norton," he snapped, rolling easily with the deck under his firmly-planted feet, "that you let that spout smash us astern?"

Captain Norton frowned.

"It's not a question of who let the spout strike the *Scienta*," he growled. "It's a matter of rigging up a jury gear or sink! The rudder is useless and doesn't respond to the helm. It may be jammed in the journal box!"

He shot a strange, haunted look at Dr. Marsden, who fidgeted uneasily at the stanchion. There was something in that look and in Norton's white, twitching face that made Bob Allen grin knowingly. He had suspected all along that Captain Norton was anything but an over-brave man. There was no doubt about it now. Captain Norton was yellow, afraid now in the disastrous situation into which he had either carelessly or thoughtlessly betrayed himself and his command. The swaggering, blustering, self-important skipper of the *Scienta* hadn't the nerve of the rawest boot in the navy, Bob decided suddenly.

"I knew the minute you took the wheel, Norton," he snapped with scant respect, "that you'd get us into trouble! You were advised to put into Trinidad when the barometer began falling. But no! You wanted to take the helm and show Dr. Marsden how a good

sailor should pilot a ship in a gale! Why, you blockheaded sculpin! Any second-class seaman could have steered the *Scienta* out of the spout's path!"

Captain Norton's neatly manicured hands balled into fists. He sensed instantly that there was more behind Bob Allen's open hostility than plain insubordination. This was a personal matter that was being brought to a head and he knew it; knew too that to save his face in front of Patti and her father, the taming of this young upstart of a navy lieutenant must begin at once. He took a step forward, an angry light in his eyes, and sneered.

"And who am I to follow your advice, Allen?" he snarled, his black eyes glittering between narrowed lids. Despite his sarcasm, his voice trembled.

Bob gave no ground. He placed his hands on his hips and returned the other's stare coldly. Dr. Marsden, stunned by the unfortunate turn of events, looked on in stupefied silence. The *Scienta* rolled and tossed at the mercy of the mountainous seas. The crash and roar of pounding waves and wind sounded like thunder.

Lightning flickered through the black, low-hanging skies in solid sheets, illuminating the floundering derelict in a ghastly glow. As night approached, the hurricane increased in its bitter violence.

"You're in command of this ship, Norton," snapped Bob caustically. "You ought to know how to dodge a waterspout! But like the yellow dog you are, you turned tail and ran before it with a ninety-mile gale behind you! You ought to be swabbing decks instead of commanding a ship. It was plain murder!"

A wall of green water rose to the windward. It smashed down upon the derelict with a smothering crash. Lifeboats were smashed to kindling and carried away in a tangle of lines. Dr. Marsden saw them go in a flash of lightning as his battered craft wallowed drunkenly into a sizzling, foam-crest sea.

SUDDENLY Captain Norton lost his balance and was flung toward Bob by the sickening pitching of the yacht. With a savage snarl he lashed out to smash his fists into the lieutenant's taunting lips.

"Murder, was it?" he bellowed. "Well, you can't come on my ship and tell me what to do! I'll put you in irons for mutiny, you cocky young squirt!"

Seeing Norton lose his balance, Bob at that moment was not looking for an attack. He was taken unawares. Norton's flailing right fist caught him squarely on the cheek and sent him spinning.

Dr. Marsden gave a cry of dismay and quit the support of his stanchion to intervene.

"Gentlemen! Gentlemen!" he cried. "This is no time for horse-play! Stand back, Captain Norton! Do you hear?"

Captain Norton snarled savagely and shoved him roughly aside. The *Scienta* lurched far over to port sending the scientist reeling clumsily into the binnacle. Bob rose groggily to his feet. Then Captain Norton flung himself upon him, his fists flailing.

But Bob Allen was quick as a panther. His head moved just out of the captain's range. Norton's fists fanned his face. Stepping quickly aside and catching the captain off balance he sent a stiff right upward from his knees. It caught Captain Norton full in the mouth with an ugly smack. Norton's head snapped back, his mad charge effectively checked, blood dribbling down his chin from split lips, recovering as he stepped away.

Bob followed him cautiously as he backed off. He sent a jolting straight left to the captain's lips. The plunging of the yacht made him miss. Had his fist landed, with all the steam he had put behind it, Captain Norton would no longer have been so intent upon chastising him.

Saffron-streaked though he might have been, Captain Norton was no infant when it came to fighting. He advanced warily, arms outstretched as if intent upon wrapping them around the lithe waist of his antagonist.

Bob Allen gave ground slightly and then suddenly stepped aside. As he did so, his vicious right shot out again. Norton's head bobbed up. He shook it like a dog, wheeled sharply and came on. Bob had no intention of allowing him to encircle his powerful arms around his body, for in Norton he recognized a man who would resort to any unfair tactics to win. He snapped a left and right to the captain's face. One of the blows landed on Norton's bleeding lips. He let out a groan, but quick as a flash, he staggered Bob with a hammering right cross.

His eyes blazed murder in the gloom of the pilot house. His face showed pasty in the dim light of the binnacle and the feeble blue glow of the single overhead lamp. Bob fought him off with stiff rights and lefts. Norton wiped his battered lips on the back of his hand. Sight of his own blood seemed to cause his evil temper to suddenly leap beyond all human bounds. His eyes took on an insane, murderous flare. His bloody face became the picture of hate. With a stream of vile oaths that made Dr. Marsden wince as he watched, he flung himself at the lieutenant, determined this time to fasten his powerful fingers about his throat.

Lieutenant Allen, struggling to keep his feet on a deck that rose and fell like a mad thing under him, tried to fight him off. He shot his fists into Norton's face like pistons. He felt Norton's battered lips flatten under his blood-smeared knuckles. But despite his blows, Norton's savage, bull-like rush was too much for him. Their bodies came together with a terrific impact. They staggered back and forth for a moment, each trying for a strangle hold.

Dr. Marsden had never suspected that either Captain Norton or Bob Allen possessed such animal qualities as they now displayed. As he watched, he felt that the lieutenant was due for a sound thrashing. Captain Norton outweighed him by twenty pounds or more, and he was forcing him to the deck by sheer strength and weight. Norton had, in an instant, grasped Bob by the throat with his right hand. His left arm was crooked around the small of the lieutenant's back. By forcing Bob's head back, it appeared that the lieutenant's spinal-column would snap at any moment under the strain.

Suddenly the doctor observed Bob Allen hurl himself flat. Captain Norton lost his murderous grip on his throat and grabbed blindly to retrieve it. Over and over they rolled on the heaving deck, Norton kicking and gouging and snarling fiercely. Bob fought silently, fighting a cool, calm fight and saving his breath.

Lieutenant Bob did not like this rough and tumble fighting. And he realized that Norton's weight was against him. Norton was a veritable demon when fighting keel-post style. He struggled to pin his antagonist's arms to his sides and then batter his senses out.

In sheer desperation Bob fought to his knees, dragging the fierce-fighting captain with him. The lieutenant was getting mad to the core now. For a brief moment they wrestled on their knees, then Bob sent a jolting right to Norton's lacerated mouth. Norton groaned. His hold on Bob weakened. Then Bob leaped up, circled and waited. Norton was not long in gaining his feet. The lurching ship impelled him forward. Bob was ready.

Quick as lightning his fists darted out like striking snakes. His right caught Norton squarely on the point of the chin. His head snapped back. He faltered backward. Bob followed him up, shooting terrific rights and lefts at his enemy's face. Thunder and the roar of the sea smothered out the ugly smack of flesh striking flesh. Norton was sent spinning into a corner. His eyes blazed like those of a cornered rat. He lay there for a moment as if resting. Bob saw his hands go behind his back as if for support. But Captain Norton knew in his insane mind what he was doing. His right hand slipped slowly toward his hip pocket.

He dropped his head weirdly as if all further desire for fighting had suddenly deserted him. Bob, sensing that the fight was over, gave him a look of disgust and turned toward Dr. Marsden. At that instant, Norton's right hand appeared again. In it was clutched a blunt-nosed automatic. Dr. Marsden saw it and yelled a warning at Bob.

Bob Allen threw himself aside just as Norton's gun cracked. He heard the whine of a bullet fanning his face

"Drop that gun, Norton!" Dr. Marsden roared. "Do you hear? Drop it!"

But Captain Norton had no intention of dropping his gun. Murder flashed in his eyes. His lips curled into a significant sneer as he calmly levelled it again at Bob. The lieutenant seemed helpless on the deck. Norton took deliberate aim this time. In desperation Bob waited to feel the snag of the bullet.

Suddenly the yacht rolled drunkenly up the side of a green mountain, lurched over the sizzling crest and slid on her side into the boiling trough. The deck rose at a sharp angle. Quickly Bob Allen rolled with it just as Norton's pistol cracked again, sending a shower of splinters up from the hard-wood flooring of the deck.

Then Bob leaped to his feet and hurled himself at the captain. The automatic snapped again. Bob felt the burn of the bullet along his ribs, but went forward despite it. Something warm began trickling down his side. He did not know how badly he was hurt. He had only the knowledge that Captain Norton meant to kill him, and he put all his strength into a headlong dive at the man.

Before Norton could fire again, Bob was upon him, wrenching the automatic from his hand. The pistol slid across the deck as the ship cleared another mountainous comber. Dr. Marsden caught it and stuck it into a pocket. Through eyes that held fear he watched the two men fighting in the corner.

Captain Norton fought like a cornered wolf, teeth bared, eyes blazing with the lust to kill. Anxious to get the fight over, Bob smashed solid rights into those battered lips. But Norton could stand punishment like a tiger, and Bob realized what a man the captain would have been had he possessed a fearless, sporting heart.

Suddenly Norton bunched his feet under him. With an oath he shifted his weight and hoisted his heavily-booted feet, aiming a vicious kick at Bob's face. It was an ugly, ghastly thing for a man of Captain Norton's boasted breeding to do. A cry of dismay escaped from Dr. Marsden's lips. Men have been killed outright from a kick such as Norton intended to give Bob. But in the instant he saw Norton's scheme to kick him to death, even as the sea-boots started upward, Bob dodged. The heel of Norton's left boot grazed the side of his head. He felt hair and flesh being ripped from his skull.

Then Bob Allen made some lightning-quick moves. With feline agility he grasped one of Norton's feet in a toe and heel-hold. Instantly he exerted all his strength in a sudden twist. Captain Norton spun over on his stomach, a scream of pain escaping from his lacerated lips. Bob realized then that he could break the man's leg at will. But he had no desire to do that. Captain Norton would be needed if the *Scienta* was to escape Davy Jones' locker. Yet he twisted that leg until Norton howled for mercy Then Bob grabbed him by the collar and yanked him erect He cocked his right to let fly, but held it.

"Listen to me, Norton!" he barked fiercely. "The *Scienta* is going to sink with all hands if we don't get busy! We can't go on fighting like a couple of school kids, with death staring us all in the face! She's already submerged below the Plimsoll mark! Do you want to quit until we get ashore, or"—he crouched as if to drive his cocked right again into those bleeding lips—"shall I knock every tooth you've got down your throat?"

Captain Norton backed away, snarling. He pointed a shaking finger at Bob's face.

"I'll get you for this, Allen!" he swore. "If the *Scienta* is going to sink, I'll kill you as she goes down, just for the pleasure of seeing you die!"

Dr. Marsden's face went a shade whiter as he heard Norton's deadly threat. He opened his mouth to say something, thought better of it, and remained silent. But in that moment he learned to despise Captain Norton. Bob Allen had been Norton's under dog since the *Scienta* had embarked nine months before from New York on a scientific voyage to Brazil. Norton had taken every opportunity to belittle the lieutenant. Yes, he learned at that moment that he loathed Captain Norton and wondered why he had ever tolerated him.

"I expect you'll shoot me in the back, Norton," hissed Bob coldly, "if I give you half a chance. You're just that kind of a dirty sculpin!"

He turned angrily to Dr. Marsden, whose face was like a shadow of death in the dim glow of the binnacle light.

"I'll get Patti, sir," he volunteered, "and bring her here to be with you if things go for the very worst. I advise you both to remain in the pilot house with life belts on. While Captain Norton has a jury rudder rigged, I'll go down into the hold and see if I can calk that leak. Any suggestions or orders, sir?"

"No, Lieutenant," said Dr Marsden quickly, giving Norton a cold glance, "no suggestions. But I order you to take full command of the *Scienta*. Captain Norton will take your orders from now on—or, you can put him in irons, sir!"

Bob grinned tauntingly at Norton.

"You heard that, Norton!" he snapped. "I'm in command now! You get busy on that steering gear and—

er, don't get yourself washed overboard, for I've a score to settle with you when we get ashore!"

Captain Norton scowled at the scientist. His battered face was the image of hate and disappointment.

"You can't relieve me of my command like that, Dr. Marsden!" he snarled bitterly, defiantly. "I've got a contract with you that doesn't expire for six months yet! I'll hold you to every word of it!"

"You forget the clause in that contract, Mr. Norton," replied the scientist firmly, "giving me the right, as owner of this vessel, to discharge you at any time for actions unbecoming an officer and a gentleman. Your murderous attack upon Mr. Allen was unprovoked and unnecessary. You have openly resented him since the day I signed him on the *Scienta* and have taken every opportunity to belittle him. For the duration of this voyage, sir, consider yourself relegated to the ranks. Now get out!"

"And if you want to live, Norton," added Bob curtly, "you had better get that rudder rigged in jig time!"

Norton gave him a sullen, murderous look, then snatched up his oilskins from a hook. He slipped into them quickly and stormed out. Bob dogged his heels to the lee companionway, pausing there to watch him slide aft under a lifeline to inspect the battered stern, then turned into the radio room abaft the bridge.

"Any contact with other ships, Sparks?" he asked the radio operator who was working nervously over his instruments.

Sparks glanced up, a startled look in his eyes, and shook his head gloomily.

"Lightning struck the antennæ, sir," he said tersely, "and instead of grounding, it shorted and burned out our generators. I got one S. O. S. out, but could give no position in time. I'm afraid we're sunk, Mr. Allen!"

Bob frowned and bit his lips until they hurt.

"Never say die, Sparks!" he said. "When you feel the sea around your throat, that's the time to say your prayers."

Sparks made no reply, but kept on tinkering with his silent radio. Bob spun on his heel and stamped away.

CHAPTER II

NIGHT spread itself over the *Scienta* like a smothering blanket. The hurricane increased in its bitter fury until it seemed that the world had suddenly overturned. The ill-fated yacht rolled and tossed with the drunken motion of a water-logged derelict.

Dr. Marsden and Patti crouched in fear in the pilot house, afraid that each sharp roll of the craft would be her last and would take them into the boiling sea.

Patti Marsden looked a great deal like her father in some respects. She had his refined, clean-cut features, though her eyes were as brown as her hair, that tumbled down over her shoulders in curly whisps. Her hands were small, with long, tapering fingers. Like her father's, they were determined hands. She was meticulously clean in her white sailor-suit which fitted her well-rounded, but supple figure snugly The masculine attire which she liked to wear at sea and in the jungles, where she frequently accompanied her father on his explorations into the unknown, subtly betrayed her delicate, feminine form. She was an excellent swimmer and decidedly athletic, being active like her father, of average height and crack shot with either a rifle or pistol.

Bob, afraid that she might be washed overboard if left alone in an effort to mount the companionway from the deck, had escorted her to the pilot house. Without stopping there he departed at once for the yacht's storerooms and secured a chemically-equipped diving helmet which was a part of the *Scienta's* scientific paraphernalia.

While Norton, with five men from the engine room and deck crews, fought to rig up a jury rudder to replace the one the waterspout had put out of commission, Bob slipped off his clothing to the waist, donned the helmet and went down into the water-filled hold to locate the leak.

The water steadily rose in the hold in spite of the pumps, until it began slopping over the uppermost cages housing Dr. Marsden's animal specimens which he had collected in Brazil for the American Zoological Gardens.

The hold was a bedlam of horrible, nightmarish sounds. Frightened beasts screamed and shrieked like insane things as they fought off death. A mammoth, ape-like creature, the first of its kind ever seen, which Dr. Marsden had discovered and trapped far up the Amazon, broke from its cage by sheer strength. The beast, teeth bared and snarling like a mad gorilla, swam in the direction of the men at the pumps. One of them brained the brute with an iron bar.

The black python, of unbelievable length and strong enough to crush the ribs of a bullock, slid hissing across the water in a phosphorescent streak toward the frenzied seamen. They halted their work, undecided whether to bolt or fight it out with the menacing serpent.

But as the python's ugly black head, almost as large as the spoon of a mucker's shovel, slipped out of the water-filled hold and up to the cargo deck, a man was ready with the iron bar. Instantly he brought it down with a sickening crunch. The jungle monster drew back its smashed head, thrashing the water into foam. Slowly it sank from view. The men breathed in relief. The two great jaguars continued to squat on their haunches on the highest cages. They regarded the rising water through blazing eyes.

While the grim drama of life and death unfolded above him, Bob Allen worked far down under water along the upper seams of the *Scienta's* bilge. There he had located the leak. Water was pouring in steadily. With hammer, calking chisel, sheet-lead and oakum he painstakingly labored to stop the steady flow. Salt water stung his creased ribs like a white hot iron. Softly he cursed Norton and his treachery.

He found that one of the plates had been sprung. Three corner rivets had been loosened by the shock. The force of the heavy seas and the speed of the yacht under Norton's control had opened the seam. He could never hope to stop the leak entirely. Yet he worked doggedly at the almost futile task, driving sheet-lead and oakum between the sprung seams.

Suddenly the lights over the pumps went out. The hold was submerged in Stygian blackness as Bob, working in the dim glow that had penetrated the water from the lights above, drove home his last bit of oakum and lead. In the unspeakable darkness that enveloped him now, he swore roundly. He dropped his tools and fought his way by dead reckoning to the ladder.

The pound of heavy seas against the *Scienta* was maddening. It sounded like the roar of field artillery.

But he struggled gamely to keep his feet under the terrific plunging of the craft. Time and again he tripped, once over the slimy, twitching body of the dying python. Touch of the palpitating monster made his blood run cold. Eventually he reached the ladder leading to the cargo deck. Dragging his weighted feet behind him he went up, his eyes smarting under the strain of peering into the blackness.

As his helmet cleared the water, a flash-light beam pierced the inky darkness The long beam played on him for a second. Then a man came forward to remove his helmet. The light flashed on his face. His eyes wore a haunted look, like that of a man who stood hand in hand with death and knew it.

"What's wrong with the lights, Bullard?" Bob asked when freed of the helmet.

"A heavy sea tore away the engine room cowling, sir," Bullard replied, "and let in tons of water, shorting the storage batteries and generating dynamos, throwing the whole electrical system out of whack. They're using carbide lamps astern. Captain Norton says we'll sink before he can get a jury rudder rigged up in this storm. He's already lost two men overboard and has been sending up distress rockets for the past half hour."

"Any replies?" Bob grimly kicked the lead weights from his feet.

"No, sir, the sea seems deserted," said Bullard. "The lookout once thought he saw stationary lights off the starboard quarter and thought they were on the Barbadoes. Captain Norton said we were too far out for Barbadoes lights to be visible."

"Norton said so, eh?" rasped Bob sullenly. "A lot he knows! We were two hundred miles south by southeast when the blow struck us. How long have I been in the hold?"

"Nearly an hour, sir," replied the seaman. "Any luck?"

"Yeah!" Bob grunted, slipping into his oilskins. His voice had the snap of a whip, sounding clearly above the moaning wheeze of the hand-pumps. "We'll stay up if you boys stick to the pumps. Now hop to it, Bullard Call me on deck if the water continues to rise!"

From their perches, the jaguars peered unblinkingly at the laboring men, their eyes gleaming like fiery balls. Bullard hurried toward the pumps, his flash light guiding him. Bob followed the beam of light to a ladder leading to the main deck. He went up with the alacrity of an athlete.

A rush of seething water cascaded around the cowl as he emerged on deck. It was almost waist-deep. He clung to the cowling rail for a moment as the seas rushed away, before attempting the hazardous journey to the companionway. The hurricane had settled down now, it seemed, to the task of smashing the *Scienta* to fragments. A hopeless derelict, she was at the mercy of wind and sea. Through what rigging remained intact the wind screamed in high-pitched tones. Through the spray he observed the dim length of a mast leaning in a tangle of lines against the bridge and pilot house. His heart skipped a beat. Then grasping a lifeline, he slid toward the companionway and raced up.

IN a flash of lightning he saw that the falling mast had smashed down part of the bridge, biting deeply into the roof of the pilot house. The door was stuck fast, held in its frame by sprung bulkheads. He put his shoulder against it and heaved in. It gave a trifle and finally opened.

A swaying kerosene lamp hung from a wall-hook, bathing the interior of the pilot in a pale, yellow glow. The ceiling was in splinters. Dr. Marsden, blood streaming from a scalp wound, lay on a leather-cushioned bench. Patti kneeled beside him, stroking his brow.

"What happened, Patti?" demanded Bob. She looked up at him helplessly. He saw at a glance that her father was unconscious.

"Oh, Bob!" she sobbed. "He's been hurt!"

Bob looked up at the splintered ceiling. The falling mast had smashed through the heavy timbers. One broken timber swayed dangerously in its socket with every plunge of the yacht.

"That timber struck him on the head," Patti added. "I managed to lift him here."

Bob surveyed a nasty laceration on the side of the doctor's graying head. It was bleeding profusely. Patti dabbed at it with her tiny handkerchief.

"I'll get some caustic and tape from the medicine chest," Bob said, turning away. He forced open the door again and slipped out. A mountain of water rose in front of him. He could have reached over the rail and buried his hand in it. The *Scienta* slipped up the foam-capped comber like a sodden log. He glanced astern as a harsh cry suddenly went up

"Man overboard!" the cry reached him above the drumming of the storm.

Then he heard Norton's voice, borne to him on the wind. It was a shallow, frightened voice, filled with mortal terror. Evidently some futile attempt was being made by members of the crew to save their unfortunate mate from death. Norton was cursing them bitterly.

"Let him go, you fools!" Norton screamed. "Let him go!"

"The dirty yellow dog!" Bob gritted to himself as Norton's haggard face became suddenly illuminated in the glow of a carbide lamp. The erstwhile skipper of the *Scienta* had taken up a position at a capstan head in the center of the after deck. There he clung, comparatively safe from the cascading seas, with legs braced against it. From the capstan he shouted orders to the dogged crew at work on the jury gear.

Cursing softly, Bob slid down the companionway, hugged the bulkheads and attained Dr. Marsden's laboratory in which the medicine chests were stored. It was pitch dark in the cabin. He knew just where to look for the chests and had no difficulty in finding them. In a moment his hands searched out bandages, tape and caustic.

By the time he returned to the pilot house, Dr. Marsden had recovered his senses. He was sitting up on the bench now, holding his aching head in his hands.

Dr. Marsden had been a man of indominitable will, infinite resource and fearless of danger. A veteran explorer of tropical jungles, he had a number of expeditions to his credit in South America, where this unfortunate voyage had taken him in search of clues that might lead him to the object of his dreams—to solve the riddle of the lost Atlantis.

But he seemed a broken, heart-shattered old man, when Bob returned with his articles of mercy. He gave the lieutenant a haunted look as he entered and then

buried his bleeding and wounded head in his hands again.

Dr. Marsden did not fear losing his own life and his yacht. Loss of these things were trivial in his mind. But Patti—the thought of her, in the full glory of youth, being strangled to death in the merciless embrace of the sea, was too much for him. He shook his head sadly at the thought, while Bob applied caustic to his wound and began bandaging it.

Patti watched through eyes that displayed more than mere appreciation. Bob was vaguely conscious of her gaze upon him. He shrugged uncomfortably. In a moment his deft hands had finished the job. He stood up, smiled at Patti and started away.

"Bob," Patti called to him softly. He turned quickly. "Father told me about your fight with Captain Norton. It was brutal of him to attack you. I'm sorry you came to blows over me——"

"Over you?" Bob feigned surprise.

"Yes," replied Patti unhesitatingly. "You see, Captain Norton was insanely jealous of me and resented your attentions, resented your being on this yacht with me. That's why he made you his underdog. He—"

"I'm not interested in the faults of your fiancé, Patti," said Bob indifferently, "nor have I time to listen to excuses for his being a yellow dog—a stabber in the back!"

He saw tears well up suddenly in her eyes. They made him feel strangely like a cur for having been so abrupt and indifferent toward her. Deep in his heart he knew that he loved Patti Marsden. But hadn't he seen Captain Norton receiving her attention for months? She gave him a startled look.

"My fiancé?" she cried defiantly. "What made you think I was engaged to Captain Norton?"

Lieutenant Bob Allen, for a long moment, was completely flabbergasted. Then he felt a strong urge to step forward and crush her in his arms. But he held his ground incredulously.

"Well, er——" he stammered. "I took it for granted, seeing you with him so much Men see such things, you know. Moreover, Norton once gave me to understand that you were engaged to him."

"I never was engaged to him, Bob Allen!" she cried angrily. "And I never want to be. He always seemed so gentle, so refined. I really couldn't help liking him a lot. But when he remonstrated with me for seeing you and threatened to smash you if he ever caught us together, I knew he was not the man for Patti Marsden to marry."

"Threatened to smash me, eh?" Bob's voice was as chilly as the wind that screamed outside. It made Dr. Marsden look up at him curiously.

"This is no time for carrying on a feud, Bob," he warned. "It's time when all men should be friends. We may all die quickly, you know."

"Father is right," encouraged Patti in a voice that was almost a whisper, "and I want you to know before the *Scienta* takes us down, that I—I—I love you, Bob Allen."

Dr. Marsden gave his daughter a wan, but pleased smile. He had known all along how Bob Allen stood with her. He buried his head in his hands once more when he observed him stepping toward her. Bob half suffocated her with a crushing embrace. She made no protest, but clung to him, sobbing quietly.

CHAPTER III

BOB ALLEN remained only a few moments in the pilot house with Patti and her father. Then with his heart thudding against his ribs he went aft, eager to help in the work of rigging up the jury gear.

Norton, still clinging to the safety of the capstan head, greeted him with sullen silence. Whatever remarks he might have had on the tip of his tongue for the new skipper of the *Scienta*, he kept them to himself.

Rushing seas, cascading constantly over the decks, made the work on the gear a task of terror. After three men had been washed overboard, the others, fearful for their lives, had lashed themselves to the ship, allowing only enough rope for them to move about freely. They worked like bloodhounds on leashes.

The work had progressed slowly. Two four-inch joists had been made fast, hooked with blocks and tackles, to the after rigging to give purchase for steering an improvised rudder. The rudder, already fashioned out of spare planks by the ship's carpenter, had been thrown overboard, lashed to ropes and chains for hauling into position. It rose and fell dizzily on the mountainous waves astern like a raft of new lumber.

Bob stripped off his cumbersome oilskins and went into the work with indefatigable vigor. Norton clung to the capstan, making no attempt to engage in the desperate struggle. Bob glanced at him scornfully, despisingly. The Navy is not inclined to look upon cowards with any degree of respect. Allen was no exception.

"He's got the saffron streak of a mongrel," reflected Bob silently, "and the perfidy of a snake! A bad combination!"

Time crawled. The night seemed without end. The hurricane drove the derelict before it like a battering ram. Lashed in the crow's nest high up on the foremast huddled the lookout, straining his spray-dimmed eyes for signs of assistance.

Suddenly he tensed and listened hard. Above the roar of the storm and the sizzle of the foam-capped combers he thought he detected the thunder of breakers uncoiling themselves on a rock-clad beach. He struggled desperately to peer through the blackness that surrounded him. Far below, in a haze of pale, blue light, men swarmed, toiling with the jury gear. Again and again with broken regularity he heard the thunder of breaking water. Then in the blackness dead ahead he saw something loom up that was even blacker than the night.

His blood suddenly froze in his veins. The *Scienta* wallowed up a foam crested mountain. The lookout peered intently ahead. He almost prayed for a flash of lightning to illuminate the space beyond. But the lightning had long since ceased, giving way to the howling, steady wind which drove the yacht before it.

The doomed vessel was sucked suddenly into a yawning hollow. Then the lookout realized that she was being blown or borne on an incoming tide head-on into a mountain which thrust its ugly head above the fretting sea. He looked again in horror. The base of the grotesque black shadow ahead showed white. The roar and thunder of pounding breakers reached him clearly now above the tumult of the storm.

"Land ho!" he hailed, hacking at his lashings with a knife. Dead ahead! We're running ashore!"

The *Scienta* was suddenly picked up by an inrushing comber as if she was a bit of driftwood. She was thrust ahead with the speed of an express train. The sheer wall of the mountain loomed menacingly ahead now, so close that it seemed to tower directly over the careening yacht.

As he hacked himself free of the belts that held him in his perch, the lookout gasped at what he saw below. The seas under the yacht's plunging figurehead seemed to open like the jaws of hell. In the dim glow of the smashing breakers he thought he saw a mammoth cavern opening into the mountain, wind and tide driving the yacht directly into it!

Frenziedly he flung himself over the side of the crow's-nest and grasped a dripping line with trembling hands. But before he could wrap his legs around it for a quick descent to the decks below, the yacht was hurled forward, careening madly, into the black maw. Something struck the mast with terrific force. It snapped off midway from the deck and went down with the lookout.

The lookout felt himself tumbling into the sea. He struck feet-first, went under and bobbed up again, choking. He looked about, as a comber thrust him to its crest, for the white-hulled yacht. The *Scienta* was gone as if the yawning seas had swallowed her in a single, terrifying gulp. Then muttering strange things he struck out for shore with death hounding his kicking heels.

Horror-stricken at the catastrophe that had overcome the yacht, Bob Allen, risking death, had rushed toward the pilot house at the lookout's warning cries. Mountains of white water rose and fell on either side of the yacht. He reached the bridge just as the mast snapped off.

Expecting the yacht to smash upon the rocks at any moment, he dashed into the pilot house to be with Patti when the inevitable crash came. As he did so, he saw the white water-mountains drop suddenly astern. Then he felt the *Scienta* being hurled forward, as if on the crest of a cascading rapids. Suddenly white water enveloped her, rising waist-deep in the pilot house. An unspeakable darkness engulfed her. Almost as quickly as the water had swallowed the craft, it swept away and she seemed to be gliding forward like a launched ship slipping down greased ways.

"My God, Allen!" Dr. Marsden was aghast. "What happened?"

If Dr Marsden's face had been the color of aged alabaster when the waterspout struck his yacht, it was like chalk now. His eyes bore a fearful look in the glow of the lamp. Patti clung to him in horror. Bob could see at a glance that she was on the verge of collapse brought on by the uncertainty and the new menace that had come over the craft.

"I don't know, Dr. Marsden!" he gasped. "I saw the ship heading straight for shore when suddenly the sea appeared to open and swallow us. It sounds incredible, but I believe we've been sucked into an underground river or something! Here it roar?"

The tumult was almost unthinkable. They felt the yacht's sides scrape with a snarling rasp over some submerged rocks. It shuddered onward. To what fate? They did not know. Nor could they have given even the vaguest guess.

"Oh, Bob," Patti cried, splashing through ankle-deep water to his arms. "What will happen to us now?"

Bob held her close to him, whispering gently to her.

"Keep courage, Patti," he advised softly. "It may not be as bad as it looks."

"The men outside, Bob!" cried Dr. Marsden anxiously. "They may have been washed overboard!"

"Most of them were lashed to the ship," said Bob. "Norton can hang on!"

He felt Patti's warm, yielding body tremble against him. The yacht again snarled over rocks. He tightened his arms around the girl, as if to brace her against the shock of an impending catastrophe. But the yacht tore onward like a scow riding tempestuous rapids.

Strangely the *Scienta* did not whirl and spin as she sped on. They wondered what kept her going bow first. Dr. Marsden, his scientific brain at work even with death hovering in the offing, had been thinking deeply on the situation. Suddenly his eyes brightened.

"I've got it!" he cried jubilantly. "I've got it!"

Patti looked up, startled at the sound of his voice. Bob thought the scientist had gone suddenly mad. The weird light in his eyes was anything but sane, he thought.

"Got what, Doctor?" he inquired tensely.

"The Cascade! The subterranean river!" Dr Marsden ejaculated. "It's too narrow to permit the *Scienta* to swing around sideways! We're rushing through a narrow gorge and when she scrapes, her hull is rubbing against the walls on either side of her!"

"You are probably right, Dr. Marsden," said Bob gloomily. "but what can we do about it? We may leap a subterranean waterfall any instant."

DR. MARSDEN'S jaw fell hopelessly. He began pacing the deck nervously, a deep, troubled frown on his pale face. Suddenly he paused at the chart-table, looked at the maps spread thereon, then glanced at Bob, his eyes haunted by the appalling nearness of death.

"While we're waiting for—er—that waterfall, Lieutenant," he said, "will you chart our position?"

"Of course," Bob responded, glad for any activity that would relieve the tension of uncertainty. He escorted Patti to the bench. She sat down wearily. Lifting the smoking lamp from its swivel bracket, he carried it to the chart-table and placed it there. Then with Dr. Marsden looking on intently, he bent over the charts.

Working swiftly with dividing compass, parallel rulers, and sliding scale, he quickly traced the *Scienta's* course from the moment the hurricane had struck her. After a few moments of rapid figuring, he looked up.

"We were two hundred miles south by south-east of the Barbados when the storm hit us," he said, frowning. "The hurricane began driving us north-west. If the wind continued blowing us, a derelict as we were, in that direction, it would inevitably drive the *Scienta* ashore somewhere in the Windward Islands." He paused a moment to study the charts again, then continued. "There's no doubt in my mind, Doctor," he added, "that the mountain I saw dead ahead of us and under which we doubtless plunged, was Mt. Pelée on Martinique!"

"You really believe," muttered Dr. Marsden, "that we were sucked into a subterranean channel somewhere under that volcano, Pelee?"

"It seems incredible, sir," said Bob grimly. "But that is my belief. Had Captain Norton followed my advice and run for Trinidad when the barometer began

falling so rapidly, this would not have happened to us."

The pilot house door suddenly swung open before Norton's broad shoulders. His face was the color of chalk. He entered, admitting a draft of cold, icy wind.

"Speak of the devil," Bob grinned at him, "and he's bound to show himself!"

"Yeah?" snapped Norton viciously. "Still looking for trouble, aren't you, Mister Allen?"

Bob stared at him coldly, but made no reply. Patti looked up at Norton and then cast a frightened glance at Bob. With a defiant shrug Norton sat down beside her, taking hold of her trembling hands. She pulled them away quickly.

"That will be enough, Captain Norton!" she warned him with cool indifference. "I heard all about you trying to shoot Mr. Allen in the back. Only a cur would attempt that!"

"Oh, I'm sorry, Patti," Norton lied with a pleasant baffling smile. "I was merely trying to defend you and your father against a healthy young mutiny."

"You're a liar, Norton!" Bob snapped furiously.

"We'll see about that someday, Mister Allen!" Norton jeered.

"Enough of that bickering, gentlemen!" barked Dr. Marsden. He glared at Norton, adding, "What brought you here, Norton, after I ordered you off the bridge?"

The erstwhile captain of the *Scienta* rose to his feet. "I just wanted to tell you, Marsden," he declared boldly, "that when you placed that young pup of a lieutenant in command, you sent us all to our doom!"

His eyes began to blaze with the unutterable fear that was in his heart. He glanced around him furtively, helplessly. His hands trembled.

"Had you jumped in and helped the men with that jury gear instead of clinging to the capstan," snapped Bob, "we might have gotten the ship away before she ran ashore. But you're yellow, Norton! You hadn't the nerve to risk being washed overboard!"

Driven almost to the point of madness, Norton whirled on him murderously. Bob, stepping away from the chart-table, his fists clenched, was not going to be caught napping again. But if Norton had any intention of attacking, they were suddenly jarred out of him by the rending crash of the *Scienta's* hull against the rocks.

There followed long moments of dread uncertainty. Expecting the vessel to sink or leap a subterranean waterfall at any instant, Patti sprang with a cry to her father's arms. Norton was appalled. Bob scowled at him bitterly.

Suddenly they became aware that the *Scienta* had entered calmer waters, for no longer did she seem to be rushing headlong down a boiling cascade. Though the craft was moving forward with a lumbering roll, like a launched ship dipping her bottom for the first time, she seemed somehow to have run out of the rapids.

From the deck outside came the patter of sea-booted feet. Bob heard his name called out raucously. Then he realized that the world outside had suddenly become brighter, illuminated, it seemed, by a peculiar, pale blue light. With a bound he reached the door and yanked it open, to find Sparks, Bullard and other members of the crew tensely waiting for him.

"What's up, men?" he demanded; then peering into the space beyond the *Scienta's* rail, he received the shock of his life. For a moment he gasped at the scene, speechless. The world had, it appeared, become illuminated with a faint, bluish tint. It seemed ominous.

"We've run into some large lake sir!" said Sparks incredulously. "Look! There are other ships here!"

Bob Allen needed no invitation to look. His eyes roved everywhere. Before him stretched a large lake, calm and unruffled. But the water glistened like polished fire-opal. And the *Scienta*, battered though she was, glided forward, borne slowly on a gentle current toward a half dozen rotting ships that were beached on the shore scarcely a mile ahead. The hulks loomed up like brown ghosts, their masts, broken or gone.

Bob Allen required no second glance to tell him that they had been weirdly sucked into some underground world on a subterranean stream that cascaded down from the open sea. Incredibly high overhead was the roof of the mysterious subterrane, stretching as far abroad on either hand as he could see. It was like the proscenium arch of some monstrous theater, glowing solidly with a pale luminosity so characteristic of the place.

The only sound in the place was the dull, muffled roar emanating from the cascade. Even this tumult was rapidly decreasing as the ship was borne farther away from its source. Men stared about in unutterable awe. Bob, struck suddenly with the idea, wondered if they would ever get out. Then, in a voice made hard and brittle by his excitement, he called Dr. Marsden from the pilot house. The scientist came forth quickly, accompanied by Patti. Norton followed glumly.

"Take a good look around, Dr. Marsden!" enthused Bob. "What do you think of it?"

Dr. Marsden stared in amazement. A flush of color swept into Patti's face at the realization that death had been cheated, temporarily at least. Norton's face brightened, too, and the look of fear gradually left his eyes as he took in the weird scenery.

For a long time they gazed in silence. Then as the current drew the *Scienta* closer to the beached hulks, Dr. Marsden uttered a surprised exclamation.

"Good Heavens!" he gasped, as if something vastly important had suddenly dawned upon him. "Will you look at the nameplate on the stern of that rusted ship!"

With a trembling hand he pointed shoreward. The *Scienta* was sweeping closer now and would soon beach herself, borne forward on the current of the cascade. But all eyes followed his pointing hand, eyes that were filled with amazement.

"Why——" stammered Bob in surprise. "It's the *Cyclops!*"

He could not believe his eyes. Across the stern of the rusted, battered hulk nearest to them ran the nameplate of the U. S. S. *Cyclops!* So close were they now to the wreck that there was no mistaking the name. Though the paint on the plate was weather scarred, the letters stood out clearly, a dull white against the red rust of the hulk.

"It is the *Cyclops*, Bob!" Dr. Marsden exclaimed in a weird tone. "Why, we've found her—solved the mystery of the missing collier! You know about her, don't you?"

"Naturally!" Bob grunted. "She left the Barbados, West Indies, in 1918 for Hampton Roads, but never arrived. No trace of her was ever found after her departure. Why, she must have been drawn into this place in the same manner as the *Scienta!* It's the *Cyclops* all right!"

"Wonder what became of her crew?" interjected

Sparks, a former Navy man. Bob shook his head unknowingly.

"It's almost certain that none of them ever got back to civilization," Sparks continued, "else they would have told what had happened to the *Cyclops*. If I remember right, there were 309 persons aboard ship when she left the Barbados. Not a one of them was ever seen or heard from after she left the islands!"

Suddenly Bob observed a stealthy movement in a tangle of gear behind Dr. Marsden. It was only a flash of color, yellow and black, but enough to warn him that a dread danger stalked the decks of the *Scienta*.

He concentrated his attention for a moment on the débris, while the others stared in awe at the strange scenes offered by the subterranean world. Again he saw a faint movement behind it. Then in a flash he realized what it was. Before he had time to shout a warning to his comrades, the escaped jaguar behind the débris snarled fiercely and leaped full length at the back of Dr. Marsden.

Bob's right hand was already buried in the pocket of his oilskins. It came out with a jerk, clutching a .45 automatic. Patti screamed at the sudden, unexpected explosions of the gun. Bullets struck the big jungle cat in midair. The jaguar seemed to hesitate and wilt. It pawed savagely at the air, went limp and fell short of its victim. It struck the deck with a thud and rolled by sheer momentum into Dr. Marsden's legs, upsetting him.

Bullard, standing nearest to Patti, pulled her to safety. But Bob's bullets had gone true. The jaguar lay dying, three bullet holes directly between its eyes.

Sparks helped the scientist to his feet as the *Scienta's* side scraped along the rusted hulk of the long-lost *Cyclops;* she buried her nose with a jar deep in the sandy beach. Norton made no effort to lend a hand. He stood leering stolidly, like a vengeful outcast.

"That was mighty good shooting, Bob," said Dr. Marsden, extending his hand. "Thanks, old man."

"We've got to be more alert hereafter, sir," said Bob quietly. "There's still another jaguar running loose on this ship."

From the forepeak came a sudden, long drawn out cry. It made Bob's blood tingle. The other jaguar had come up unnoticed from below and was perched on the forepeak ready to leap ashore. Once again Bob snapped up his automatic. But before he could fire at the beast it gave a mighty leap, paws outstretched, and vanished over the bow. In a brief moment thereafter they saw it loping serenely up the beach to finally disappear behind a wall of matted vegetation.

They did not tarry long on the decks of the *Scienta*. After filling gunny sacks with provisions and arming themselves with rifles and ammunition, they went down a Jacob's ladder to the beach.

Tired as they were from a sleepless night and worn out by the frenzied pitching of the derelict during the storm, they thought it best to set out at once in search for any signs of habitation. They considered it a waste of time to look through the rusted, beached hulks, though Bob, Bullard and Sparks scrambled aboard the collier and found nothing to indicate the presence of its crew. They concluded that if any members of the unfortunate crew survived, they would have in all likelihood left the wreck to search for an avenue of escape from the strange earth-bubble into which they had been drawn.

On the beach, however, Dr. Marsden became very alert. His eyes roved everywhere in search of signs that might betray the presence of humans. They had not gone more than a mile up the beach, before his toe kicked up a small object which he retrieved quickly.

"What is it, father?" Patti asked.

"A small stone idol, Patti," the doctor replied gravely. "It is distinctly Mayan."

"Well, let's get going, Marsden!" barked Norton curtly. "This is no time to look for idols!"

"You are at liberty to go alone if you wish!" snapped the scientist angrily.

Bob chuckled softly. He gave the erstwhile skipper a sarcastic nod.

"That ought to hold you for awhile, Norton," he laughed. "You'd just love to go alone, wouldn't you?"

Norton scowled at him in silence. Bob saw his hands tighten on his rifle. His eyes narrowed. The look on the ex-captain's face was enough to warn him to be on his guard. The man would bear constant watching if he, Bob Allen, was to live very long.

"How do you suppose the idol got here?" Patti inquired queerly. "Do you think there are savages in the vicinity?"

"I don't know," her father replied, frowning, "but we may soon learn. Do you know, girl, that I believe we've stumbled on that for which I have been searching for many years?"

Patti's eyes widened.

"You mean that this place is the lost continent of Atlantis?" she asked.

The men listened intently for his reply. Norton seemed uninterested. Out of the corners of his eyes, Bob slyly watched him.

"Of that, I'm uncertain," said Dr. Marsden, "but there is every indication of it being so, judging from some of the strange tales I've heard from the Indians in the Matto Grosso of Brazil. They have a legend that tells of a great city once lying at the base of a tall mountain which I believe to have been Mt. Pelée. There came a tremendous volcanic eruption from the mountain causing all the vast lands surrounding it to submerge beneath the sea, burying the great city and many Mayans with it. This idol may be a clue to the truth, for we are without doubt somewhere under Mt. Pelée at this very moment.

"Subterranean disturbances have caused, at some time or other, great earthquakes and eruptions, and in seeking an outlet, the powerful gases created a great tunnel or blowout into which the *Scienta* was drawn. That is the only explanation I can find at the present for this tremendous earth bubble in which we stand now," he concluded, pocketing the idol carefully.

They plodded on up the beach. Eventually they reached a break in the wall of vegetation. There Norton discovered a narrow trail leading somewhere inland away from the shimmering lake.

Believing the trail would lead them to some habitation, they entered upon it without hesitation. Norton led the way, with Bob following close on his heels. Patti and her father came up between Bob and the crew which acted in the capacity of a rear guard.

Finally Norton, after several hours of steady hiking, halted with an exclamation.

Hanging to a thong stretched between two twisted, evil-looking trees directly in the trail was a human

skeleton! Its bleached bones wore the same peculiar blue glow. Patti, accustomed to seeing the bones of men in her father's laboratory, as well as in the jungles, did not shudder at the sight. Instead she looked at it curiously, its grinning jaws facing her, sightless sockets staring wide.

Norton exchanged glances with the scientist and then stepped back.

"That's a warning of some sort, Doctor Marsden," he said quietly, "apparently placed there to stop anyone from going further on this trail.

"No doubt," replied the scientist. "I've seen such warnings before in Brazil. I always found it unhealthy to ignore them. But we've got to go on. If Indians hung that skeleton up there, our number and rifles ought to hold them in their places."

"It proves that we're not alone here," interjected Bob anxiously. "What do you suppose makes those bones glow as they do, as everything does here, Doctor?"

"The place is fairly salted with radio-active elements, Bob," said Dr. Marsden quietly. "Notice how warm the ground feels under your feet?"

Bob nodded.

"Well," continued Dr. Marsden, "since there seems to be no sun here to warm it, the earth must contain radium. Without radium or other radio-active minerals present to radiate warmth, this place would have a temperature far below freezing."

"There might be some volcanic activity below," suggested Bob.

Dr. Marsden shook his head thoughtfully.

"I do not believe so," he said. "If there was activity, we would doubtless smell carbon or sulphur compounds."

As if that settled the matter, they gazed upon the skeleton again. Then Bob unsheathed his machete, stepped ahead of Norton and slashed the thong. The skeleton crashed aside with a dismal rattle of bones. They went on past it.

CHAPTER IV

LIEUTENANT Bob Allen now in the lead, was tensely alert as he led the bedraggled castaways along the forbidden trail. After another good hour of steady plodding they noticed an abrupt change in the topography and in the character of vegetation. The ground began to descend suddenly. The trees and vegetation grew more twisted as if in torture. There seemed a certain transparency in them now that created no little interest and wonder in Dr. Marsden. The others wondered at it, too, but only the scientists appeared to know hypothetically the reason for the transparency.

The presence of radium became more and more conspicuous in every living thing as they proceeded. Because of its quantity or oxidation, Dr. Marsden thought, the radium seemed to have the effect of a powerful X-ray on plant life. But he was no master of physics, metallurgy or chemistry, and while he had his theories of the reaction of radium oxide on matter, he was not scientifically fitted to get at the bottom of the strange mysteries confronting him and to offer a concrete solution.

The descending ground, however, gradually became steeper until the going presented a problem. It was like climbing down a steep mountain now. But far below, half-hidden in a blue haze that shimmered like heat-waves on a flaming desert, lay an expansive valley. The trail, in places partly overgrown and never more than two feet wide, wormed its way down the precipitous slope toward it. So steep did it become eventually, that Bob remarked to Patti, that only a mountain goat could traverse it with any degree of safety.

Patti smiled grimly. Norton made an attempt to help her down a particularly steep incline and bungled her descent. Bob caught her arm as she started to slide. Regaining her footing, she gave Norton an indifferent smile. He shrugged his broad shoulders and went on, leaving her to her own destinies. She held her own, however, and managed the grade without further assistance.

She realized suddenly that she was very tired and weary. She felt a desire to throw herself on the ground and go to sleep. But gamely she fought off her feelings of exhaustion. After what seemed ages they attained smoother ground at the base of the mountain. How far down they had climbed from the lake they could not know exactly. Bob judged for himself that they must have dropped at least four or five thousand feet.

A wall of matted brush confronted them at the bottom. The narrow trail wound about its edge, then finally entered the brush. A hole at some time or other had been hacked through the brittle undergrowths like a tunnel. Though Patti could have walked through it without bending over, she was nevertheless compelled to do so to escape catching her hair in low-hanging twigs or the stinging dust that frequently was shaken upon them by their contact with the growths. Bob and the others were compelled to stoop laboriously as they went on. Weighted down by their packs and rifles, this made the going all the harder for them. Yet none complained, except Norton who swore under his breath.

He walked directly behind Bob. Dr. Marsden followed him. Then came Patti, the crew behind her. It would have been a simple matter there in the semi-darkness of the underbrush, for Norton to carry out his threat by shooting point blank at Bob. But he knew that Dr. Marsden was on the alert; that one significant move in that regard might cause the scientist to swing into action with his own gun. So Norton wisely betrayed no signs of hostility toward the man he hated.

"I'll gamble this tunnel wasn't made by big men," Bob remarked over his shoulder. "Indians could hardly have made it."

"That's what I've been thinking," responded the scientist. "It's not an Indian trail. An Indian could not walk upright in it and they detest stooping, because its hard work. They'd go miles to get around this area of brush."

"There may be a tribe of pygmies living here," interjected Norton with some sarcasm. "Haven't you thought of that, Mister Allen?"

Before Bob could reply, his rifle suddenly flew from his grasp. The ground beneath him seemed to sink downward. He gave a yell of warning and vanished from the rtail, dropping into a hole like a plummet.

The party stopped short. Norton gave a guttural grunt of surprise, when he saw that Bob had vanished from view with a crashing of brush. Patti gave a muffled cry and went on. Her father held her back.

"Stand back, Patti!" he warned. "Bob fell into some sort of an animal trap. Keep away! There may be others!"

He rushed forward quickly and paused at the edge of a deep hole. The brush that had hidden it from view had fallen in under Bob's weight. He heard the lieutenant gasping for breath.

"Bob!" he called anxiously. "Are you hurt?"

"I don't know yet, Doctor!" came Bob's voice from the pit. "Drop me a rope, will you?"

Dr. Marsden turned to Bullard who carried a coil of half-inch manilla line around his shoulders.

"Drop him a line, Bullard!" the scientist ordered. "Hurry!"

The rope was dropped into the pit. A half dozen eager hands were ready to pull him out. Norton hung back, grinning amusedly. Patti gave him a disdainful glance, but said nothing.

Dr. Marsden dropped to his knees and peered into the hole. Like everything else in the mysterious subterranea it glowed with the pale blue luminosity. He saw Bob clinging desperately to a thick creeper that had grown into the pit from the trail. A dozen feet below his dangling feet was the bottom of the hole. It was studded with long, sharp studs that would have impaled him had his fall not been checked. In a moment they had him out. His hands were bleeding and full of black splinters. Otherwise he was unhurt.

"That was a close call, Lieutenant!" reflected Dr. Marsden grimly.

"I've been closer to death than that, Dr. Marsden," Bob returned, glancing at Norton. The ex-captain looked away, scowling.

"Let me bandage your hands," volunteered Patti.

"They'll be all right," he smiled his appreciation. "We had better not waste any time now. I'd hate to get caught here at nightfall. We'd better go on. I'll fix my hands later."

"He won't die from a few scratches," declared Norton. "Let's get going!"

Thereafter Norton took the lead. He slung his rifle over his shoulder, cut himself a long pole and probed the trail ahead of him as he went. He was taking no chances on being hurled to his death in another hidden trap.

"Some poor devil went to his death in that trap, Dr. Marsden!" Bob confided in the scientist as they went on. "There was a human skeleton impaled on the studs. I saw it!"

"We'll have to be careful," said the scientist. "There may be others. They're man traps, no doubt. The skeleton on the trail was the warning. I should have guessed it. Trail traps or pitfalls are common in the jungles of Brazil."

"I've been wondering if the poor devils were from one of the ships on the lake," said Bob quietly.

"No telling," returned Dr. Marsden. "They might be the remains of Indians. We should have searched the pit for a clue."

"Too late now," said Bob glumly. "It wouldn't have done us any good. But that trap had been re-covered since the fellow fell into it. That much is certain, for until I fell, I hadn't seen the slightest break in the trail. The hole was cleverly concealed."

"Oh, we're not alone here, Lieutenant," Dr. Marsden frowned. "You can lay your life on that."

Norton's long pole suddenly punctured the trail ahead of him. He gave a snort and stopped short.

"Another pitfall, Marsden," he said bluntly. "We'll have to hack our way around it."

Two men came forward with machetes. Norton directed them to widen the trail around the hidden trap. Meanwhile, Bob and Dr. Marsden broke away the covering and peered into the pit. Two human skeletons, grinning grotesquely, lay on the bottom, sharp spikes sticking upward through the bare ribs that were still held together by hardened cartilage.

"I'm going down to investigate," said Bob decisively. "Looks like our friends had become frightened by the trap back there and started to run along the trail. As a result of their haste, two more went down."

He ordered Bullard forward with the rope. Quickly he slid into the pit, lowering himself between the murderous studs that reached almost to his waist. With a flashlight he glanced over the skeletons. Clothing hung in shreds over the bleached bones. The stench was almost overpowering. But from between the studs he fished a rotting officer's cap, thrust it into his shirt and called to the men to haul him back on the trail.

Once on the trail again he carefully studied the cap, inside and out. Dr. Marsden and Patti looked on in silence. On the underside of the crown had been stamped in ink the name of the man who had owned it. But the lettering was so faint that reading was difficult in the dim, blue light. With his flashlight, Bob made out the name and grunted.

"Why, this hat belonged to a chief quartermaster of the *Cyclops!*" he exclaimed.

"Hmmm!" Dr. Marsden mused. "Poor devil! Lord, how he must have suffered impaled on those spikes before death overtook him!"

Bob nodded with a shudder.

"I've been thinking," he reflected, "that maybe the *Cyclops* was a deserted derelict when she was sucked into the cascade. But this proves she still had at least part of her crew aboard. We may find some of them living here somewhere."

"I hope so," said the scientist.

THE trail was quickly widened around one side of the pit. They continued unwillingly; all were weary and cautious. It was stifling under the matted vegetation. Rank dust kicked up by Norton's cautious feet and probing pole made those behind him cough and gag. At length Patti dampened her handkerchief from a canteen and tied it over her nostrils. This gave her some relief from the choking dust.

There was considerable pulverized sulphur, among other things, in the dust that swirled about them in clouds of delicately-tinted yellow and blue. It made the nostrils burn, the lungs ache and sting. There was some element of torture in the dust that quickened the heart and overheated the blood, causing it to run like water in the veins. This peculiar sensation, which to Patti was like stepping into a tub of water too hot for comfortable bathing, was made more unbearable with every step.

Lips became parched and feverish. They drank sparingly of their water, not knowing how soon they might refill their canteens Beyond the lake, there seemed to be no water in the subterrane. But they could indistinctly hear the sound of water rushing somewhere

overhead. It sounded like breakers rushing headlong on a rock-clad shore. It dawned upon Dr. Marsden suddenly that they must be far beneath the ocean floor. The thought startled him. He gave Patti a grave look, then glanced at his watch.

It was 12 o'clock, the hour of midnight on the surface of the world he knew. Yet here, there seemed to be no change from night to day or *vice versa*. He wondered if the dim blue light was a fixed feature of the subterrane and concluded after a bit that it was, due to the glow of the radio-active elements everywhere and the total absence of any sunlight.

His thoughts and speculations were suddenly diverted by an exultant shout from Norton. They had just rounded a sharp turn in the overhung trail and now the open valley lay directly ahead in a blue fog. Bob gave a sigh of relief when he realized that at last they had negotiated the low tunnel. His back and neck ached violently from the strain of constant stooping. They followed Norton forward hurriedly, their hopes borne upward by the thought of getting out of the misery forced on them by the brush.

Norton was the first to reach the open. He had been in advance some fifty feet. On seeing the end of the brush tunnel and praying for relief for his aching back, he broke into a scrambling trot. Without caution he literally ran out of the brush, almost blindly. Before he realized it, he found himself tottering on the edge of a sheer precipice. He gave a cry of horror and fell back as the others emerged into the open.

"What's up, Norton?" Bob hissed, hurrying to his side.

"My God, Allen!" Norton muttered, a strange note of terror in his voice. "I nearly fell into hell's own pit! Look!"

Bob looked forward with a gasp of surprise. Stretching out before him as far as he could see through the blue haze, was a monstrous, circular hole in the ground. The trail broke off abruptly at its edge. He crept cautiously forward and looked down into the pit. It was like a mammoth crater illuminated by blue lights.

And in it at the bottom were countless moving objects that held his attention as if he were suddenly transfixed. With a sensation of horror running up his spine, he watched, unable to believe his own eyes at what he saw.

The bottom of the pit fairly swarmed with unnumbered human skeletons performing some menial work there!

Human skeletons! Moving about in animation like living beings.

It was preposterous! Incredible!

But there they were! He was seeing them with his own eyes, though the hole in which they moved was so large and deep that they looked no bigger than pygmies! He blinked his eyes to make certain he was awake and not dreaming a nightmare. He discovered that he was very much awake and that the animated human skeletons were very real indeed.

Yet he looked on incredulously. They moved about the bottom of the crater like so many ants. Then he made another startling discovery. Nestling close to the walls of the abyss were many strange pieces of machinery, so large that they dwarfed the comparatively tiny *ghosts* that moved about them.

He had not observed the machinery at first, so fascinated had he been by the animated skeletons. But he took them in quickly now, noting carefully that they were being attended by the ghostly creatures whose bones moved about like men.

"I *must* be dreaming!" he told himself aloud. "Why, skeletons simply can't walk around like that! And the machines, why——"

"What's that, Bob?" Dr. Marsden crept up beside him. Bob had not been aware that he was talking to himself aloud. He jumped at the sound of the scientist's voice as if he had been pricked with a needle.

"I said skeletons simply can't crawl out of a grave and walk around like those in the hole are doing!" he said weirdly. "Take a look down there, sir! It's hell's own pit! It's like a world of the living dead!"

Dr. Marsden crept closer to the edge of the pit and peered into it. For a long time he stared in silence at the strange, appalling sight. Bob watched tensely, fascinated. Norton, leading Patti and the others came forward quietly to peer over the precipice. Patti dropped to the ground between Bob and her father.

When she observed the spectral scene below, she gave a shrill cry of horror. The skeletons paused in various attitudes of listening, as if they had heard her cry. Then one of the sailors, in his surprise at seeing human bones moving about like ghosts of men, accidently lost hold of his rifle. It went clattering loudly down the steep incline of the pit, gathering rocks and débris as it went. In a trice a fair-sized earth slide was in progress down the steep slope, creating a rattling din that increased to a hollow roar as it proceeded.

There was a sudden rush of skeletons to the far side of the crater as they sought to escape being buried by the slide. Then Bob heard a man's raucous voice yelling up at them. But he could not catch the words, though he recognized they had been called out in his own tongue. He knew instantly that they had been seen and he wondered what sort of a reception they were due to receive.

He was soon to learn, however, for as the slide reached the bottom, burying several units of machinery under it, a projectile-like object darted into the blue air from an obscure section of the abyss. It shot upward at a dizzy pace and was followed by another and another until a half dozen of them swarmed through the blue haze like so many grotesque birds of prey.

As they darted higher, swarming over their heads, they made low, hissing sounds. The castaways watched them with growing concern and observed that they were propelled through the air by ejections of pale, blue gases shot from small tubes which projected from all sides of them like studs.

SUDDENLY they massed together over their heads and hung motionless in the air, tiny jets of blue flame shooting from them on all sides. They were much larger than they had first appeared and Bob calculated silently that each could transport at least a dozen passengers.

But his calculations were decidedly in error. A trap-door on the bottom of each machine slid suddenly open. From each plunged in quick succession, scores of weird-looking creatures to whose broad shoulders were attached small flying devices which, they all observed, enabled them to fly through the air like individual birds. Attached to the mysterious devices were small whirl-

ing propellers that made no sound as they spun along.

They dropped downward with a slow, gliding motion. As they came nearer, Bob noticed that each flier held in his grasp a peculiar wand-like tube no less than a foot long and about as thick as a man's thumb. They were too high up yet for him to make out their features. But he observed that they were unlike any living thing of intelligence he had ever seen before.

They appeared menacingly hostile in the manner in which they cautiously descended. They held their tubes in front of them as a man would a pistol. Bob slid his rifle forward silently and elevated the muzzle so that it was in line with the foremost creature. But he had no intention of pulling the trigger without ample cause. Yet in his excitement and bewilderment at the appearance of the fliers, his finger tightened unconsciously on the trigger.

Out of the corners of his eyes he saw Norton stealthily bring his rifle into line with a descending creature.

"Hold your fire, Norton!" he hissed at him. "They may want to talk. Don't shoot until they start something."

"Oh, Bob," Patti whispered as if suddenly sensing something untoward. "I'm so afraid!"

"I don't like their looks," said Bob grimly. "We're ready for them!"

He hissed again at Norton.

"Pass word along to the men, Norton," he urged quietly, "to shoot the minute they start anything."

Dr. Marsden was silent. He watched closely every move of the strange fliers. They were coming ominously near now. He quickly counted their number and discovered that his party was outnumbered twenty to one. But for the peculiar wand each flier carried, they seemed unarmed.

Yet, Dr. Marsden was too shrewd to be fooled in that respect. He understood that creatures, with the intelligence and genius to build and fly aircraft, must also be reasonably skilled in the making of deadly weapons. He was not deceived into believing the wand-like tubes were to be offered as proverbial olive branches, though there had been no indication yet betraying that they were weapons of any kind.

He became interested in their uncanny ability to hover so unconcernedly in the air. They had no wings; nothing to hold them aloft except the tiny flight devices. He saw, as they came closer, that they resembled men, but in caricature only.

They were near enough now for him to observe their physical aspects. They had two legs, extremely long and skinny like those of a stork. Their arms were as long as their legs and as lithe and sinuous. They had very small backs, the torso ending abruptly under the shoulder-blades. Their shoulders were broad and thick and they had the bulging chest of a blower pigeon. On their head they wore dunce-like hats held in place by a wide chin-stay. Though he could not yet see their faces, he felt they were as grotesque as their bodies.

Suddenly they spread out in a line and then as if by signal, plunged downward in a burst of speed. As they came they held their wand-like tubes thrust out before them, menacingly. Bob felt his blood tingle, expecting some terrible death to come from the tubes. He realized at a glance the futility of resisting the creatures because of their numbers. But Norton did not seem to realize it, for without warning he pressed the trigger of his rifle. The explosion broke the taut silence like a peal of thunder, echoing and re-echoing across the deep abyss.

Instantly the excited sailors began firing at the rapidly descending horde. Bob watched, cursing, for the effect of the bullets, and was amazed that not a flier betrayed the slightest indication of having been hit. Then he raised his own rifle and took deliberate aim at the bulging chest of a creature nearest to him. He held his cheek grimly to the stock of the gun and was perfectly confident that he would not miss.

Then he deliberately pulled the trigger. The gun kicked against his shoulder as it sent its messenger of hate into the air. But the flier he had fired upon did not throw up his hands and tumble out of the air as he had anticipated. Instead he saw the creature jerk its tube in direct line with his head. Then from the thing shot an inconceivably brilliant beam of light. It struck him squarely in the eyes. His head spun and his senses reeled as if he had been hit on the forehead with a heavy club.

He let go his rifle and reeled sideways, dimly aware that Patti was screaming fearfully. Mingled with her cries he thought he heard rifle shots, but was not certain, for his head seemed filled with strange noises. His hands automatically went to his eyes. He rubbed them vigorously as if to allay the stinging, burning sensation that had mounted in them from the effects of the flier's ray. Then suddenly he realized that he was as blind as a bat!

He arose to his feet and stumbled backward, blindly, away from the abyss. His eyes burned like fire; his head ached with maddening violence. He stumbled over a rock and fell headlong. He heard Patti scream again. Then all became silent. He fought desperately to see what was happening to her. But the world had suddenly become dark. He saw nothing but blackness. He groaned pitifully, rubbing fiercely at his blinded eyes.

Suddenly he felt something, like a pair of strong hands, clutching him under the arm-pits. He was jerked roughly to his feet. Hopefully, desperately his sightless eyes searched around him. But he saw nothing through the curtain of Stygian blackness that had spread over him.

"Is that you, Dr. Marsden?" he mumbled, vaguely aware that he was being lifted clear of the ground and into the air. There was no reply. His senses were reeling like those of a man coming out of an anesthetic. After what seemed eternities of flying through space, he felt a vivid sensation of falling rapidly.

At length he thought he felt his feet touch solid ground again. He was not sure. His legs were alarmingly weak. He felt them buckle under him. The pain in his eyes was intense, almost beyond endurance. From his parched lips came great gasps. Sweat stood out in beads on his face.

Again he felt himself picked up, this time, it seemed, by the legs and shoulders. He felt something or someone push open his flaming eye-lids. He imagined he caught the smell of an odorous liquid. Then he felt a warm substance trickling into his open eyes. For a moment he was stunned almost to insensibility by the overpowering pain. He thought suddenly that his eyes had been plucked from their sockets. The pain increased in its maddening intensity until he screamed,

fighting desperately to escape from the grasp of whatever it was that was holding him down.

Then the mercy of complete senselessness fell upon him like a shroud of death. Two animated skeletons, lorded over by a grotesque flier, carried him off the floor of the abyss and into a long corridor that ran diagonally underground from it.

CHAPTER V

WHEN Bob Allen regained his senses he found himself lying on a hard, but comfortably warm floor in a dimly-lighted underground room that was without ventilation. He awoke with a fit of coughing, to discover that his vision had been restored. For a long time he lay flat on his back staring at the eerie, blue-glowing roof above him, wondering if he was dreaming that he had been blind. He rubbed his eyes hard and blinked to make sure he was awake. There was no mistake. He was wide awake now and could see perfectly. The indescribable pain had left him and while he was not aware of it, his eyes were swollen to almost twice their normal size. They appeared ready to pop out of their sockets. The lids were inflamed to a cherry red. But the pain had left them.

The blue glow of his surroundings told him plainly that he was anything but dreaming. He *had* been totally blind, he recalled. But, he asked himself silently, why had the Subterranean fliers taken the trouble to restore his sight? He wondered if the odorous liquid they had forced into his eyes out in the crater had reacted against the effects of the blinding ray. But why had they returned his vision to him after he had deliberately attempted to kill the flier who had blinded him? Did the Subterraneans know no vengeance? Or had they merely restored his sight for reasons that would serve their own purposes?

A slight movement beside him attracted his attention. He stiffened and glanced furtively aside. What he saw there caused him to leap almost out of his skin. With a gasp of surprise and horror he recoiled, eyes wide. While he had lain staring at the roof, an animated human skeleton had been sitting calmly beside him, its awesome presence unknown to him. The shock and horror of seeing this ghostly and revolting thing made his blood run cold. He leaped up and crouched.

"Don't get excited, buddy!" the jaws of the skeleton moved as it spoke in a calm, almost amused tone. Bob was stricken dumb for a moment. He stared at the ghostly thing before him in awe and horror. The skeleton's jaws moved again. The thing's voice was brittle and rasping. "I've been put here to watch you, skipper," the fleshless jaws put forth. "Don't try anything and you'll live for the present."

"Who—who are you?" Bob gasped, overwhelmed. "A ghost, or what?"

The skeleton laughed outright. It was a hard, bitter laugh, with a ferocious note in it that made Bob wince. The grisly jaws closed suddenly with a vicious snap.

"I'm not a ghost, skipper," the skeleton said bitterly, "but many's the time I've wished that I was! It's been hell here these fourteen years since the *Cyclops* took a dive into a cascade and stranded us in this dirty, rotten hole!"

"You're from the *Cyclops?*" Bob gasped incredulously.

"Chief Engineer of the *Cyclops,* skipper!" the skelton said. "The name's Scoops Larkin! What's yours?"

The skelton of Scoops Larkin stood up and extended a horrible, grisly hand in a gesture of friendship. Bob hesitated in taking it, but finally extended his own hand. He watched it, as he would a snake, and saw his hand grip the bones. But instead of feeling bones, he felt warm, friendly flesh! He looked into the eyeless sockets with a shudder.

"I know how you feel, shipmate," said Larkin quietly. "It's hell to shake the paw of a skeleton, isn't it?

Bob nodded in awe.

"Your hand feels like any other," he said shyly. "But good Lord, I thought for a minute I was going to get a handful of bones!"

"You just can't see the flesh, that's all," said Larkin, eying his hands bitterly. "All we ever see of each other here are bones, bones, bones; God, it's terrible! It's a world of the living dead, skipper, so far as we humans are concerned!"

"I don't look like a walking skeleton, do I?" Bob grimaced.

"Not yet, buddy," replied Larkin with a snap of his jaws. "But you will before very long!"

"Why?" asked Bob, feeling Larkin's arm curiously. His fingers touched perspiring flesh. But he saw only the man's arm bones. There was a gap between the bones and his hand.

It made him shudder.

"When they put you to work in the radium mines," said Larkin, "you'll become a walking skelton like the rest of us!"

"Radium?" Bob asked dumbly.

"Aye!" Larkin grunted. "The place is full of it. It runs in veins, like gold, through the big hole. This place, the walls, the ground, everywhere, is salted with it. It lights everything with a blue glow! In the lingo of the Subterraneans, radium is known as *taas.* After human flesh is exposed to it for any length of time, it causes the flesh to become even more transparent than glass, leaving only the bones visible. You and your outfit'll be compelled to work with us in the radium mines. After a couple of weeks, you'll look no different from me, or the others!"

"Radium kills human beings, who are exposed to it, in time, doesn't it?" Bob gave him a weird look.

"It does, skipper!" growled Larkin. "It's the deadliest thing in the world. But every so often we are put through a normalizer that overcomes the effect of the *taas* on our system. But it doesn't react to the transparency to my knowledge. It might. Anyhow, the Subterraneans say it doesn't."

"So you're mining radium here, eh?" Bob ruminated.

"Aye!" replied Larkin. "And you'll be surprised when I tell you why!"

"Why?" Bob watched the engineer's grisly face expectantly.

"The *taas* is being mined for use against our people on the surface!" Larkin snarled ferociously. "With it the Subterraneans intend to wipe out humanity and take over the surface for their own use. Why, skipper, there's enough radium already stored away in their arsenals and laboratories to split this old world forty ways from Saturday night!"

Bob whistled in astonishment.

"What the devil do they want to wipe us out for?" he asked. "Aren't they satisfied with what they have here?"

"Why did the Kaiser want to rule the world?" Larkin's jaws snapped. "Power, of course! Certainly the Subterraneans are satisfied with what they've got. But they want more! They want the surface because they're so overpopulated here that they're packed like sardines in a can. Moreover, they have objections to our people pumping oil out of the earth. Oil is to the Subterraneans, what water is to us. They drink it. Their lives depend on it and naturally they can see the time when there won't be any more oil. I guess we'd raise plenty of hell, too, if somebody started taking our water from us."

"It sounds incredible," said Bob quietly. "Fantastic."

"Fantastic, huh?" Larkin grumbled. "You wait and see! You haven't seen anything yet. Why, the Subterraneans have created the deadliest implements of war this world has ever known. It was one of their *brillia-rays* that made you blind! They shoot the rays from metal tubes. The rays emanate from radium confined in the tubes. The *brillia-ray* is only one of a dozen they can shoot from their radium guns. The *taas* tubes have a dozen small buttons on it, the pressing of any one of them will put a man in a helluva fix. They can also project a beam we call the *hideo-ray* that will destroy the muscles of a human body, making it a hopeless cripple as long as it lives. That's not long, skipper! Press another button and—pouff—you just vanish from the earth in a puff of blue smoke! I've seen 'em use that one, too, on one of our men who got stubborn. We've never been able to see all the rays they have, but what we have seen are bad enough! The Subterranean scientists have got us beaten to a crimp! Krupp, Lewis, Fokker—why they're just kids compared with the scientists here. And here we are, helping them get ready for their big push against our own people!"

"When does this big push begin?" Bob's voice trembled.

"Begin?" Larkin barked fiercely. "Why it's already started! They've got tunnels bored under New York, Chicago, San Francisco, Berlin, Paris, London, Tokio—everywhere! And the tunnels are so big that fleets of taas flyers can navigate in 'em a hundred abreast!"

BOB stared at him incredulously. It was unbelievable!

"It must have taken centuries to drill the tunnels," he gasped.

"Centuries hell!" said Larkin. "They were run to within a half mile or so of their objectives in the past two years!"

"You've kept a record of time since you came here fourteen years ago?" Bob asked, overwhelmed.

"That was easy," the other snorted.

"Well, isn't there some way Washington can be warned of the threatened raid?" asked Bob tensely.

Larkin laughed outright like a mocking ghost.

"Did you see a human skeleton hanging over the trail as you came here?" he asked, sobering.

"We cut it down," replied Bob bluntly.

"Well, that skeleton once held the flesh of the *Cyclops'* radio operator," snapped Larkin sharply. "He tried to get back to the ship to get the wireless working and send a message to the outside for help. They shot him with a hideo-ray to torture him. After that they let him have a strip-ray that instantly removed the flesh from his bones! Then they hung up the skeleton to warn others and had secret pitfalls dug in the trail to trap any of us who might try to escape that way. Several slipped away, but they never came back. We've been hoping they got past the traps."

"They didn't!" said Bob grimly. "I fell into one. Skeletons lay on the bottom, impaled on spikes. But tell me, Larkin. How did they manage to drill such long tunnels in so short a time?"

"Radium guns!" said Larkin. "They look like big cannons, only they shoot a kind of radium gas that melts away everything in their path. That's how! Why, in a month's time they can complete the tunnels and be on the streets of every large city in the world!"

Bob stood silent for a moment, studying Larkin's ghastly face reflectively. Larkin returned his stare through apparently sightless eye-sockets.

"You think they'll use the radium-cannon on our people?" Bob asked at length, shuddering.

"Aye, skipper!" snorted the engineer. "And they'll destroy cities like New York with a single volley!"

"They have cities of their own underground?" queried Bob anxiously.

"We were taken direct to the Subterranean palace when we were captured," said Larkin. "They have one big city surrounding it. It is about twelve miles underground from here and is called 'The City of The Queen.' Everything is of metal there—probably nickel. The whole Subterranea is ruled by a big, cold-blooded wench with the face of a crow and the heart of a snake. She's been up here to the taas mines twice to look us over. She has a fondness for big, strong sailor boys!"

"She eats them?" Bob grinned sourly.

"Worse than that!" said Larkin. "She's a vampire! She'll take a man down to her palace. After playing with him like a cat toys with a mouse, she sucks his blood. You'll be seeing her soon. She'll be coming up here to look at you and your outfit. They're a strange lot—the Subterraneans. Radium doesn't seem to affect 'em. I'm told that the oil they drink prevents the taas from making them transparent. That makes it tough on us, because we can always be spotted by our bones."

"How do you recognize your friends?" asked Bob. "All skeletons look alike."

"When we want to talk to a buddy, we've got to call out his name," replied Larkin. "If he's handy, he comes forward waving his arms, or else he calls back to you. How many men in your outfit, skipper?"

"I had thirty-seven men and one woman with me on the crater-rim," Bob declared quietly.

"A woman?" exploded Larkin in surprise. "I didn't see any woman when they brought in the captives!"

Bob's heart almost stopped beating. He looked long and hard into the eerie face of Larkin's skeleton, as if searching for signs of a lie. He saw only the grisly features of a human skull, ghostly, unemotional. He felt a lump rise in his throat and swallowed it with difficulty.

"My God, Larkin!" he groaned finally. "Don't tell me she wasn't brought here with us!"

"There wasn't a woman in the lot, I swear!" declared Larkin gravely. His voice bore a distinct ring of truth. "I'm certain of it! I saw you all laid out, blinded. Had there been a lady with you, I'd have certainly seen her!"

Bob buried his head in his hands and stood in silence for a moment. Larkin heard him sigh heavily. Suddenly he tensed. He looked again at the engineer, a ferocious animal light in his half-closed eyes.

"She was dressed in a man's clothing, Larkin," he said

hopefully. "Maybe you overlooked her." Larkin shook his head.

"There was no woman brought in, matey," he stated with bitter finality.

"Then she must have escaped into the brush!" Bob snapped as if grasping at the last straw.

But again Larkin shook his grisly head.

"There's no escape from the Subterraneans once they set after you, skipper," he said. "There was a fight on the rim. I learned they left three skeletons up there. A blue *strip-ray* hit 'em, stripping the flesh completely from the bones. Maybe you'll find her there. . . ."

"No! No! It can't be, Larkin!" Bob cried, grasping the engineer savagely by the arm. "They wouldn't kill a woman like that?"

"Don't kid yourself, skipper!" grunted Larkin. "Sex doesn't mean a thing to the Subterranean devils, particularly where human beings are concerned. They'd kill a woman as quick as a man if she didn't do as bidden."

"Where are the others, then?" Bob demanded.

"Under guard in another room," replied Larkin, "Who are they? How'd you all get in here?"

"The owner and crew of the power yacht, *Scienta,*" said Bob in a shaking voice. "I was captain. We were washed ashore by a hurricane after a waterspout smashed our steering gear. The ship was sucked into an underground watercourse and finally ran into a lake. The girl was Patti Marsden, daughter of the *Scienta's* owner, Dr. Marsden. My name is Allen—Lieutenant Bob Allen, late of the U. S. Navy."

"Glad to know you, Lieutenant," said Larkin crisply. "The girl mean anything to you?"

"Mean anything to me?" Bob looked at him like a caged animal. "Why, she means everything to me, Larkin! I resigned from the Navy to be with her. Now she's gone!"

"Tough luck, old man," said Larkin grimly. He was silent for a moment, then added. "But life's like that. Maybe you'll be mighty glad later that she's not here to share our hardships. We're going to be in the middle of hell before long!" Then, as if to change the subject, he included. "You say your ship took a dive into a subterranean channel?"

Bob nodded in gloomy silence, like a man stunned speechless.

"The *Cyclops* ran into it, too," Larkin continued. "We hit a hurricane after leaving the Barbados. We were headed for Hampton Roads. But a German agent had rigged up a time bomb to our engines. It exploded during the storm, putting the engines out of whack and killing nine men. We tried sails for a time, but the hurricane blew them away and we had to drift with it until we ran into the side of a mountain. We wound up in this hell-hole. I still can't believe I'm not dreaming!"

Suddenly he tensed to listen, as the faint sounds of footsteps reached them from the corridors outside the room. Bob looked at him anxiously. Larkin gave him a nod.

"THE SUBTERRANEANS!" he whispered softly. "They're coming now. Take my advice, Allen, and do what they tell you. You can't get away and to be stubborn means certain death for you. They'll put you to work with us attending to the taas-extracting machines. But keep a stiff upper lip. It'll be a lot easier for you. And that automatic you have in your pocket, better not try to use it, for bullets are ineffective against the devils, because they wear radium armor that disintegrates lead and steel as it strikes. If you try to shoot any of them, they may blind you permanently or skin your bones alive!"

"I'll do my best, Larkin," Bob glared at him, standing with his back against the wall. "Thanks for the advice. But you had better hide my pistol somewhere. I might want to use it *effectively* sometime."

Larkin looked at him curiously, as if reading his thoughts.

"Suicide won't help our people on the surface, Allen," he whispered reproachfully. "We've all kept on living, hoping that some day we might have the luck to get out a warning. Forget your gun! Let 'em take it. I've got a better weapon ditched away. It's a taas gun and I know how to use it—if I ever get the chance I want."

Bob stared at him quizzically, wishing that he could see the face of this man instead of his repulsive skeleton. Mentally he pictured Larkin as a square-chinned individual with hard-fighting eyes and broad shoulders; a he-man if one had ever enlisted for service in the United States Navy.

But at that moment an orderly squad of metal-garbed Subterraneans marched into the room, their long, skinny, stork-like legs carrying them forward swiftly. Bob appraised them coldly, but with a certain sense of repulsion, as they advanced toward him. Larkin stood aside calmly. Now he seemed like a man who had lost his spirit, so docile and submissive was he.

It was the first time Bob had an opportunity to see what the Subterraneans really looked like. As Larkin had said of their Queen, they had sharp crow-like features, with eyes deep set and as penetrating as gimlets. They flashed at times in the blue glow like the eyes of a striped cobra, green, flashing with unspeakable venom. They had no chins and their mouths were without lips, being more bird-like than human.

Their stubby, broad-shouldered bodies, long skinny arms and legs were as grotesque as their ugly faces. Their skin, if Bob could have called it such, visible only at the thick necks just above the metal armor, was a delicate blue in color. But it was covered with tiny scales that under certain shadows glistened like the body of a humming bird. Their hands were finely developed, having three even-sized fingers and a thumb of equal length. They looked as if they had evolved from the talons of some primitive bird. Each creature carried a taas tube or radium-ray gun which they held down at their sides.

As if by signal, they paused in the center of the room. Two of them stepped forward and stood before Larkin. The engineer stiffened to attention. After a moment's silence, Bob heard him speak to one of the Subterraneans.

"Yes, O Masters," Larkin said as if in reply to a silent query that had been put to him by the Subterraneans. "This prisoner is ready for work."

Bob stared at the engineer's skeleton quizzically and then switched his attention to the Subterraneans who stood before him. One of the creatures opened his mouth like a frog snapping at a fly. The jaws closed with a powerful, brittle snap. Bob recognized it as a signal to the others, who came forward at once. Without preliminaries they stripped him to the waist.

At the first touch, he had an impulse to resist, to send

his enraged fists into their unemotional faces. But he held himself in check, realizing that it would be futile to fight. But he hated the touch of their hands on his skin. It made him feel cold and clammy.

He watched them go through the pockets of his jacket and wondered why he had not been searched before. They took possession of his automatic, regarded it contemplatively, then hurled it to the floor. Instantly one of the creatures snapped his taas tube in line with the pistol. A thin, dull blue ray hissed from the tube. Bob was astounded to see his pistol disintegrate before his eyes. He blinked incredulously. In place of the automatic lay a tiny heap of dust!

He swore angrily, rebelliously. He closed his fists and crouched, ready to fight. Taas tubes were instantly pointed at him.

"Don't be a fool, Allen!" snapped Larkin. "They'll kill you!"

Reason got the upper hand of emotion and Bob relaxed. His swollen eyes flamed with hatred for these mysterious, hideous Subterranean killers who had no compunction about stripping the flesh from a woman's bones. He realized that they would unceremoniously do the same to him on the slightest provocation. He shrugged his shoulders resignedly. As if reading in his mind that he would offer no further resistance, the Subterraneans lowered their weapons.

Instantly thereafter he felt a strange sensation at the base of his brain. It was as if someone had pricked him there with a needle. It made him jump. Instinctively he looked around. Then he saw that one of the creatures was regarding him intently. It dawned upon him suddenly that the Subterranean was giving him a warning by means of mental telepathy It was the thought-waves that gave him the strange sensation at the base of his brain. He felt them impinging forcefully on his mind.

"Surface dweller," the creature's thoughts were stamped indelibly on his mind, "as long as you live here in the Inner World, you must never raise your hand or your voice in anger against your masters, on penalty of death. You cannot escape. To attempt to do so will bring certain doom upon you. You are condemned to work in the taas mines until you are dead. The *Queen* has spoken!"

INWARDLY rebelling against the prospect of a life of laborious toil in a strange land and for despised enemies, Bob Allen leered at his captors in contempt. Better were he dead a thousand times, he told himself, than become a common slave. The muscles along his jaws hardened. A look of bitter hatred sprang into his eyes.

"You can tell the wench for me," he snarled at the Subterranean, "that I'll wring her ugly neck if I ever get the chance! That goes for you, too, you dirty crow-faced killers!"

The Subterraneans seemed most thoroughly shocked at that. Bob, hands on his hips, stood glaring at them, not caring whether he lived or died. Subterranean jaws clacked in anger. Cobra-like eyes glittered resentfully. With a jerk the foremost Subterranean brought up his taas gun to mete out instant justice to this hated and despised surface dweller who dared speak disrespectfully of the Queen of the Inner World.

And had it not been for the intervention of Larkin at that desperate moment, Bob Allen would have been annihilated without further ado. Larkin hurled himself between the lieutenant and the Subterranean, beseeching, begging the Inner World man to be lenient.

"He is not in his right mind, O masters!" the engineer cried. "He is crazed with grief over the loss of a woman he loved. Spare his life, O masters! Give him another chance!"

For a moment Bob thought the levelled taas tube would send them both to their doom. The Subterranean stood undecided, holding his tube menacingly, one of his long fingers playing over the release-buttons on the instrument of death. But after a moment of dread uncertainty, he lowered the weapon to his side and with his free hand, pushed Larkin aside.

The Inner World warrior stepped up close to Bob. Before he could dodge the vicious blow, the metal tube was suddenly lifted and brought down viciously across his head. With a groan he sank to the floor, blood trickling down his cheek.

As he dropped, he felt the Subterranean's thought-waves impinging again on his brain.

"The Queen shall learn of your disrespect, O dog of the Surface!" the creature informed him with deadly force. "It is better that I let you live now, for she will want to chastise you in her own way! Get up, O dog!"

Larkin helped him to his feet. The squad closed in around them. They were marched out of the room, Bob reeling at every step, his head throbbing violently.

"You're in for it now, skipper!" Larkin whispered as they went along a corridor toward the open. "They'll suck your blood and throw you to the *pachydactyls!*"

"I don't care a damn what they do, Larkin!" Bob snarled. "If I die, I'll take a few of them with me. You can lay your life on that!"

"Lot of good that would do," hissed Larkin. "It would be like taking a few grains of sand from a beach and throwing it to the winds. The population of the Inner World runs into trillions. Overpopulation, as I told you, is one of the reasons why they want the surface."

"Well, they haven't got it yet!" Bob growled. "How come they talk our lingo? And what the devil is a *pachydactyl?*"

"No, they haven't," reflected Larkin. "But to my way of thinking, they'll get it right enough. They know our palaver because our minds are like open books to them. They have the power to learn our lingo merely by reading the mind. Having no vocal organs, they can't talk. But they can project their thoughts to another brain in a way that makes you understand as if you were talking with them. It's just mental telepathy.

"As for the *pachydactils,*" he added, "you'll see one of them if you live long enough. They're the damndest animals I ever saw. The Queen keeps 'em in her palace. They are held in veneration by the Subterraneans. They worship these animals as heathens worship stone idols. They look somewhat like elephants with bat wings. They're flesh eaters and are to these heathens what the sacred cow is to India. Well, here's where you begin to work as a slave for our crow-faced friends, old man!"

They had reached the open. The creat crater, with its hundreds of animated human skeletons, opened out from the corridor. Bob's first act was to look longingly up at the rim of the crater where the fight had taken place. He looked around for Dr. Marsden.

The scientist, Norton, and the others stood in a group a short distance away under guard of a squad of Subterranean warriors. They had been stripped to the waist and looked strange in such spectral surroundings. The living standing among the animated dead!

Quickly Bob counted his companions from the *Scienta*, ending up with himself. He made a startling discovery and felt a sudden stream of hope sweeping through him. He turned to Larkin grimly.

"Did you say three of my party had been left dead on the rim?" he demanded, scarcely able to control his emotion.

Larkin nodded his creamy-white skull.

"Are you certain of that?" Bob hissed.

The engineer nodded his head assuringly.

"I was told they left three skeletons up there," he replied.

"I've counted my men," said Bob quickly. "Three of them are missing. But that doesn't include Patti Marsden! Had she been left up there, four skeletons would remain. Patti Marsden must have escaped into the brush."

"I doubt it, Allen," said Larkin. "There is no escape from the Subterraneans If there was, I'd have been gone long ago! But maybe I'll learn something about her. If I do, I'll let you know at once."

A guard tapped Bob lightly on the shoulder with his taas tube and motioned him forward. He was prodded over to his companions. Dr. Marsden geeted him with a gloomy nod. Bob noticed at a glance that their eyes were swollen and inflamed. He knew at once that they too had been blinded in the fight on the rim. Norton gave him a sullen look. His teeth were chattering. Yet the Subterranea had the temperature of Paradise. Bob managed a grin at him.

"Scared, Nort?" he asked quietly.

"Never mind that!" Norton snapped back like a cur at bay. "What became of Patti? Being in command, you're responsible!"

Bob felt Dr. Marsden's eyes upon him. He looked squarely into them and saw no sign of reproach there. Grief lurked there; bitter grief and hopelessness.

"Do you know where she is, Bob?" he asked, in a trembling voice.

Bob shook his head in despair.

"I hate to say it, Doctor," he gritted, "but I was told that three skeletons were left lying on the rim."

Dr. Marsden looked startled and ran a palsied hand over his inflamed, swollen eyes.

"You—you mean," he muttered strangely, "that one of them might be Patti?"

Before Bob could reply, the Subterraneans began herding them toward the taas extractors, which were working silently at the radium-salted walls of the crater. The débris of the earth-slide had been cleared away by laboring skeletons. One great machine that had been buried under the avalanche, lay to one side, a mass of twisted wreckage. Another extractor had been brought up to take its place.

As they went forward, Bob looked longingly up toward the crater rim. Were Patti's flesh-stripped remains lying up there unburied? Or had she somehow managed to slip away during the fight to a refuge in the brush? Would he ever see her again? Asking himself these unanswered questions he entered the slavery to which they had been condemned, with a heavy heart, resolved to scale the crater at the first opportunity, regardless of the cost, to search for a clue to her fate.

CHAPTER VI

THERE was no hesitation on the part of the Subterraneans to put their new captives to work. But Bob considered himself fortunate in having Larkin for a sort of a straw boss. Their captors had ordered him to oversee the new arrivals and to acquaint them with their duties. The engineer himself was elated, for it gave him a chance to learn the news of the outside.

Considerately, he placed each member of the *Scienta's* personnel and crew at working points where an occasional exchange of thoughts was not impossible. This brought Dr. Marsden, Norton and Bob in close contact with each other. Larkin hovered near at hand as he schooled them in the work of attending their allotted units of machinery.

The taas extractors were unlike any mining machinery they had ever seen on the earth's surface. Though Bob displayed only a casual interest in them, Dr. Marsden availed himself of every opportunity to study them closely. By doing so, he kept his grief-filled mind from brooding over the unknown fate of his daughter. Being mechanically-minded as he was, it did not take him long to understand some of their intricate principles.

The machines were like enormous printing presses, so large in fact, that they dwarfed the perspiring laborers, who swarmed around them, carrying away the *tailings* of the mining operations. Each machine possessed a large cylindrical attachment fixed firmly to one end. This was of a mysterious transparent metal and into it was drawn by some attraction unknown to the doctor, the ores from which the radium was obtained.

By a process unknown to anyone but the Subterranean scientists themselves, the ore was disintegrated into particles the instant it was attracted into the cylinders. From there the particles, whirling and spinning, were drawn deeper into the machines where the separation process began, removing the radium from the disintegrated ore and placing it in small, cylindrical tubes of transparent metal, which were gathered from finishing racks and given into the hands of the ever-present Subterranean guards.

From the rear of the machines, the worthless tailings of the processes were vented in dust form. It came out of the vents in such quantities that scores of skeletonized slaves were kept constantly busy carrying it out of the way of each machine. Steady streams of skeletons, moving back and forth, carried the worthless débris to a waste-dump, where frequently a Subterranean guard caused the increasing pile to completely vanish by a discharge of radium gas from a cannon-like gun placed near at hand for that purpose.

But Bob Allen had little stomach for his job, which was that of looking after the finishing rack of the machine Larkin had turned over to them for attendance. Dr. Marsden was intensely interested in his easy task of keeping the machine's extracting cylinder close to the wall. This he did by merely turning a valve that moved the entire machine forward inch by inch.

Norton helped Bob at the rack while the crew, including Bullard and Sparks, labored on the tailings. It was Norton's duty to carry the radium-filled tubes to the waiting Subterraneans. He went about his work

like a man in a trance, frequently burning his hands in contact with stray particles of radium, whose powerful radiations instantly attacked the tissues, causing blisters. The sting and burn was torture, yet there was no escape. The Subterraneans were taking no chances. Always they kept the workers under close surveillance.

"It's damned strange they don't mine their own lousy radium!" snapped Bob to Larkin whose skeleton stood by, watching.

"Why should they?" the ex-engineer rejoined quietly. "They've got us to do it for them. Besides, this menial work is far below their artistic temperaments. They're at work in the tunnels, where they wouldn't trust us. We might manage to complete a shaft leading to the surface and give warning to our friends. That would put a big crimp in their plans of attack. So they keep us here, old man."

"What are you kicking about, Allen?" said Norton, glaring at his blistered hands. "You've got the softest job of the lot!"

"It's not the work," Bob's taut voice contained more than a hint of further rebellion, "it's the principle. Slavery, so far as I'm concerned, passed out with old Abe Lincoln and I'm not going to stand for it now!"

"Well, what are you going to do about it?" Norton shrugged.

"There's nothing we can do now," said Larkin in warning. "Our chance may come later."

"I don't intend to wait, Larkin!" Bob hissed from between clenched teeth. "You've been here fourteen years! You'll be here forever if you keep on waiting for a chance to break away! Ever think of making that chance yourself?"

"What good would it do?" said Larkin gloomily. "They'd wipe us out in one sweep of a ray gun!"

"Better to die fighting like a man than to be toyed with like a rat in the paws of a cat!" growled Bob fiercely.

The rack automatically filled with finished tubes. Throughout the entire process of mining the precious radium, the machines operated soundlessly. Norton reluctantly grasped a new burden and went away, cursing softly. Bob urged Larkin closer to him.

"I'm going to sneak up on the rim, Larkin!" he whispered decisively into the other's invisible ear. "I can't go on until I find out about Patti! If they've killed her, I'll——"

"Be yourself, skipper!" warned Larkin softly. "I'm afraid you'll regret any impulsive moves. But if you're dead set on going up, I'll help all I can. There's a—" he paused and glanced around cautiously. "Get busy!" he added harshly. And then under his voice: "Here comes a guard! Must have caught our talk!"

With that he turned away toward an approaching Subterranean, nodded as he passed the grotesque creature, and strode stiffly around to the other side of the machine as if to check up on the work of Dr. Marsden. The Subterranean approached Bob, stood just behind him for a short time contemplating him rigidly, then went away. Bob breathed a sigh of relief. Curiously he watched the guard vanish around the machine, wondering if he had, by mental process, intercepted his words with Larkin. But after a moment he shrugged his shoulders resignedly, and watched the radium tubes as the machine shunted them into the rack.

Larkin did not return for some time. Meanwhile the Subterranean guard appeared again and stood contemplating him silently as if desiring to say something and thinking better of it remained stoical. Again Bob watched him amble away. Puzzled at the creature's peculiar actions he looked for Larkin. Unable to distinguish him from any one of the other animated skeletons he finally called out his name. Larkin came toward him with swift strides.

"What's the guard watching me so closely for, Larkin?" he inquired when the engineer came up. "Been back here twice. Do you think he suspects my intentions of going up to the rim?"

"Dunno, skipper," said Larkin. "They can intercept thoughts a long way off. Maybe he's wise. Better give up going to the rim for the present. If they suspect your plans, you'll be watched even closer!"

"You were going to tell me something when the guard interrupted," hissed Bob curiously. "What was it, Larkin?"

LARKIN glanced about furtively, then leaned forward.

"There's a way of getting up to that rim, buddy," he whispered, "if you want to risk the chance."

"I'll take it!" Bob ejaculated in a low tone. "What is it?"

"Remember I told you I had a taas gun ditched away?" Larkin asked quietly. Bob nodded. "Well," the engineer added, "there's a taas flight outfit that fits on the shoulders, keeping it company. Scoops Larkin hasn't been sleeping all these years, buddy. You can fly up there in a jiffy if you're not seen!"

"That's great, Larkin!" enthused Bob excitedly. "Where is it? When can I get it?"

"When we knock off work," whispered Larkin. "They're hidden in our sleeping quarters—in a hole I dug for them."

"Then, by heaven, I'll do it!" gritted Bob, eyes flashing with determination. "When do we knock off work?"

"When the guard gives the signal," said Larkin. "Then we'll be relieved while another shift goes to work."

"Another shift?" Bob was amazed. "What ship are they from?"

"No ship," replied Larkin. "They're Indians—Mayans, whom the Subterraneans found living near the lake."

"Then this place is the lost continent of Atlantis?" asked Bob.

"Part of it," said the engineer. "A few Mayans escaped death when the continent sank, but were trapped in this big earth-bubble. They multiplied, but the Subterraneans have just about finished them off with hard work. Those left are slaves like ourselves. We'll be relieved soon."

"Dr. Marsden will be tickled to know that he's at last found Atlantis!" said Bob. "The poor devil! I'll have to tell him. It'll help keep his mind off Patti."

Larkin turned away, but Bob grasped him by the arm.

"Don't forget, Larkin," he said quietly. "I'm going up on the rim with that flying outfit!"

The engineer nodded assuringly.

"They're yours, skipper!" he said obligingly. "But I'll feel pretty danged guilty if you fail to make the grade with the gadgets!"

"Don't you worry about me," Bob advised him. "I'll give a good account of myself no matter what happens."

He turned to the rack. It was pretty well filled to capacity with finished tubes. He looked about for Norton to convey them to the Subterraneans. The erstwhile skipper of *Scienta* was nowhere to be seen. Mystified at his disappearance, he grasped a number of the tubes and carried them himself to the waiting guard. The Subterranean accepted them with stoic informality. Bob looked about hurriedly for Norton and saw him off toward the corridors, surrounded by four guards who were marching him away to some unknown fate.

"Now what the devil did he do?" he asked himself silently.

Though he despised the man, he felt an urge to follow after him to learn what was up. He looked about for Larkin. The engineer seemed also to have disappeared, else he was mingling with his mates, indistinguishable from them by reason of his transparency. Dr. Marsden beckoned to him from the machine. He went to him quickly.

"What happened to Norton, Lieutenant?" the scientist inquired. His voice was husky, like that of a very old man. To Bob his hair seemed to have grown shades whiter since his capture. His eyes, still inflamed, bore a look of fear. His hands trembled and his shoulders seemed more stooped.

"I don't know, Doctor," said Bob. "He must have done something the guards did not like and they marched him off."

"I saw him talking with a guard a moment ago," said the doctor, "then three others came up and surrounded him."

"Well, he'll have to take care of himself," Bob shruggged. "We've got enough to worry about without adding his troubles to our own."

He was on the verge of confiding in Dr. Marsden his plans for visiting the rim in search of clues about Patti, when Larkin came up again. His bony hands were clenched. Had Bob been able to see his eyes, he would have observed that they blazed with murder.

"Now I know why the guard was watching you, skipper!" he hissed.

Bob looked blankly into his grisly face, then glanced at the nearest Subterranean. The creature's back was turned. He was intently watching a line of skeletons plodding laboriously toward the dumps, weighted down with their heavy loads.

"What's wrong, Larkin?" Bob inquired, sensing from the other's harsh tones that something was in the air.

"The beggar was going to 'proposition' you," hissed the engineer, "but must have decided to try Norton first!"

"What do you mean?" Bob inquired.

"Just this, Allen!" said Larkin. "For a long time the Subterraneans have tried to get one of us to join their ranks and supply them with certain information about the Surface. We've all refused, of course. But not Mister Norton! The rat! He's thrown in with them, bag and baggage!"

"I don't believe it, Larkin!" snapped Bob, incredulously. "He isn't such a hell-bender of a he-man, but he couldn't be low and yellow enough to do that! How do you know he did?"

"Listen, bozo," said Larkin. "In the fourteen years I've been here, I've learned a lot about the Subterraneans. For one thing, I can intercept thought-waves at a respectable distance. I got the vibrations of the guard, when he offered Norton immunity from further persecution if he joined with them. I heard Norton consent! The yellow rat! He's run out on us—turned traitor!"

Bob frowned thoughtfully, then shook his head incredulously. Treacherous though he knew Norton to be, he could not believe the man was so low in character. But the world had known traitors before. Why not Norton? he asked himself. It was hard to believe. Larkin might be mistaken.

"Maybe he's got a good reason for throwing in with them, Larkin," he said in Norton's defense. "He might have seen a chance to outsmart them. You never can tell about a duck like Norton."

Larkin clicked his jaws together with a snap.

"If I don't miss my guess, skipper," he said confidently, "he threw us over just to save his yellow hide. He was too damned eager to accept the proposition. He didn't even take time to think it over. He jumped at the chance and took it on the spot!"

The guard turned around suddenly, saw them idle and strode menacingly toward them. Larkin urged Bob toward the taas machine, then called Sparks forward to take Norton's place at the rack. Sparks came up, perspiring and panting from the hard labor he had been performing. Bob greeted him with a sullen nod. Then the guard gave a signal in the form of a high-sounding whistle that came from his crow-like jaws. It was the only sound Bob had heard a Subterranean make. But it was enough to inform him that his day's work was done.

"We're knocking off now, fellers!" Larkin called to the *Scienta's* crew. "Stand by for the relief!"

Bob and Sparks stood at their posts. From the corridors poured a long stream of animated skeletons, plodding forward like so many ghosts. Squads of Subterraneans herded them into the crater where they split into groups and marched to the machines.

The skeletons of the relief were a head shorter than those who were just going off duty. But Bob did not speculate on this. His mind was deeply immersed in other things of more importance than the difference of height between the Mayans and their white brothers in misfortune.

He watched them advance toward his taas machine. They came like so many ghostly automatons, as though they had been broken in body and soul. Some of them were horribly bent over. Some dragged their feet behind them as if age and toil had taken their last vestige of strength. These unfortunates were kicked and prodded forward by the guards. They took their places at the machines and dumps. Then the crater resounded with the orders of the various straw bosses, including Larkin, who called the *Scienta's* castaways together.

In military fashion he led them to the center of the crater where the others joined in the procession. With the Subterranean guards of the day following up the rear and flanking both sides of the column, they were marched into a corridor and then into a long barrack-room. The floor was bare except for a great number of transparent metal platters scattered hither and yon in disorder.

BUT once dismissed, the hungry slaves scrambled for a platter. The new arrivals looked on bitterly.

Dr. Marsden shook his head sadly. Bob cursed under his breath until Larkin nudged him.

"Grab yourself a plate, skipper!" he said. "If you don't like the chow they dish out, give it to me. I'm starving!"

Dumbly Bob reached down and picked up a platter. The others did likewise. Larkin invited him to sit down on the floor beside him, in a corner. His blood pounding rebelliously through his veins in bitter opposition to the base, inconsiderate attitude of his masters, Bob sat down. The barracks had finally brought him to realize that, like the others, he was just a common slave. Looking around him he wondered if the others could ever be reclaimed again.

As if reading what transpired in his mind, Larkin nudged him as Dr. Marsden sat down.

"Forget it, skipper!" he said. "You'll go bughouse if you let your mind play too hard on your predicament. It could be worse, you know."

"I suppose so," said Bob gloomily, "but not much!"

The skeletons, sprawled here and there waiting for a delivery of chow, watched the *Scienta's* castaways constantly, as though feasting their eyes. Bob heard them muttering and mumbling.

"God, it's great to see a man in the flesh again!" one of them said with unsuppressed emotion. "I'd almost forgotten what a man looked like! And a woman—if I could only see one! God!"

The new arrivals kept together, aloof from the others, as if the older group was composed of things of unspeakable horror. Nor did the skeletons seem to resent the aloofness, though by their actions Bob could guess that they craved new companions, friends whose flesh they could look upon. But through it all they frequently laughed, though it was a hard, brittle laugh, and the bantering humor between them was raw, bitter.

"A woman, buddy?" groaned another bitterly. "I'd be glad to see even a female's skirt! I had a girl once in New York—" his hard voice fell to a rasping half-whisper. Then he added with all the bitterness of his soul: "But that was long, long ago!"

As if his words had stirred up vivid memories, the others became silent. Bob could hear them breathing heavily. Then suddenly, breaking the oppressive stillness, a skeleton began a raucous tune.

"Oh, he had a girl once—
" 'Way up New York way,
"Long, long ago! Long, long ago!"

Immediately the rest chimed in and for a moment the barracks rang with their broken, poignant voices. From the doorway leading to the corridors and vistas, the guards watched in stoic silence. They gave way suddenly and a half-dozen skeletons entered the big room carrying large kettles of transparent metal in which sloshed soupy liquids and other appetizing-looking edibles.

"Shut up, you guys!" Larkin yelled at the others. "Here comes chow! I'm so hungry I could eat the leg of a table!"

"Haw! Haw! Haw!" mocked a skeleton nearby. "He could eat the leg of a table, fellers!" His voice was filled with bitterness.

"Yeah, so could I!" bellowed another. "If—if there was a table!"

As the kettles came around they held up their plates, unwashed, nobody seemed to know for how long. The galley crew dished out the grub with ladles. The skeletons getting theirs, began eating with their fingers in silence.

Bob looked at his platter. Bits of hard, dried food clung to it. Blue dust stained it. He wiped it off on the cuff of his trousers and waited, sick at heart, for the galley-monkey to reach him. Larkin held out his platter. The skeleton ladled him a generous portion of grub. It bore an evil smell that destroyed Bob's appetite at once. But he held up his plate. The stuff that was placed on it was thick and lumpy, like stew. But it had the odor of salt fish.

With his fingers he fished out a lump and held it to his lips. His nostrils revolted against it, but he took a small bite. His stomach revolted. With a curse he set the platter down in front of Larkin.

"The rotten slumgullion of a prison ship!" he barked. "I can't eat it!"

The galley monkey, dishing out the stuff to Dr. Marsden, paused and glared at him.

"You'll eat it, matey," he rasped, "rather than starve!"

Bob ignored him.

"It's pretty rotten, skipper," said Larkin, smacking his lips as if he enjoyed it, "but you get kind of used to it. It's all we get here. It's a kind of a fish soup. Better fill up.

"You got something to do that can't be done on an empty stomach."

"I can't eat swill, Larkin!" he breathed. "I don't want it!"

"You're the boss of your own belly, old man!" Larkin nodded.

"I'll eat it if you don't!"

"With my compliments!" Bob grunted.

His stomach was his own business, but his heart was up yonder on the crater rim where not long before, Patti Marsden had lain beside him, her warm hand clutching at his while the Subterranean flyers hovered overhead. Thoughts of that delicious moment in the pilot house of the *Scienta* when she had unhesitatingly expressed her love for him, was like medicine to his blood. They quickened his heart, made it thud against his ribs. But the grim realization that she was gone, God only knew where, smote him suddenly like a heavy blow.

For a long time he sat brooding, while the others cleaned their platters. His face was a living mask, hard, tight-drawn. In closed fists his nails bit into the palms of his hands until they hurt. When thinking of Patti, he could not help but think of Norton. His mind turned suddenly upon the ex-captain of the yacht. He recalled the intimacy between himself and Patti before that eventful day in the pilot house.

He wondered if the unceremonious jilting Patti had given him had been the direct cause of Norton selling out to the Subterraneans. Or had the man taken stock of himself and become a magnanimous enemy? Had he grasped at the Subterraneans' proposition, hoping for a chance to learn of her fate, to help his fellow men in their desperate hours of distress? Or had he other reasons?

Other reasons?

The thought plagued Bob Allen.

It was like an all-consuming flame and he found himself cursing the man with unwholesome venom.

CHAPTER VII

THEIR meals consumed and platters laid aside, the skeletons began mumbling ominously among themselves as they reclined on the hard floor of the filth-littered barrack-room. The arrival of the newcomers, talk of home and of sweethearts, had stirred up within them smouldering, half-forgotten memories.

Fourteen years of loathsome confinement in a world so near and yet so far removed from their own had dulled their wits. Constant watching, unspeakable cruelties and persecution, exercised upon them by their Inner World captors, had held them subdued, almost broken in body and spirit. They were like human robots, long shorn of their wills, suddenly finding that shreds of their old powers still remained in them and had taken root.

The sight of men as yet unaffected by the mysterious forces of the radium, whose flesh they could see, had awakened them to the bitter realization of their own dire straits and conditions. Why, they told themselves, they were no more than living ghosts! Home, women? Wives, mothers, children and sweethearts? There were such things after all, weren't there? Sunshine, stars, moonlight nights! None of these things existed in this hell-hole, this world of skeletons, labor, horror and that maddening blue glow! But, they inquired of themselves time and again, what could they do about it?

Had Bob Allen, however, not been so preoccupied with his own dire thoughts he would have marked the progression of discontent to almost open rebellion in the others. Sitting beside Larkin, with his back against the wall, thinking of Patti and racking his brains for a way out of the situation, eyes closed as if to shut out the grisly horror of his surroundings, he had failed to observe the fermentation of discontent and mutiny among the skeletons. But Larkin had been listening to their grumblings, watching, dividing his attentions between them and the four guards who loafed listlessly at the doorway. They seemed unconcerned at the growing discontent, but Larkin knew a few things about the Subterraneans. He knew that with so many voices speaking at once, so many thoughts being broadcast simultaneously, the warriors could intercept nothing more with all their powers of mental telepathy than a meaningless jargon.

Time had passed swiftly. Ordinarily the skeletons would have been asleep by now. For a long while Bob sat there in silence, lost in thought, deaf to the sounds about him. Dr. Marsden, through sheer exhaustion and worry, had fallen asleep and lay sprawled beside him on the floor, a pitiful spectacle.

Here was an old man, of breeding and culture, accustomed all his life to the finer things, lying asleep in filth, a common slave, no better off than a hog in a sty. Larkin shook his head a bit sadly as he looked at him, then at his exhausted men sprawled out around him. He wondered how long the scientist would live under the domination of the Subterraneans.

Glancing again at the guards, he nudged Bob. Rudely shaken out of his thinking and brooding by the engineer's sharp elbow, he leaped up, mentally alert, poised at his full height as if danger had put him on his guard.

"You got the jumps, skipper!" Larkin hissed softly. "Get hold of yourself, man!"

Sensing something in the oppressive air, he looked down at him anxiously.

"What's wrong, Larkin?" he queried rigidly.

"Sit down, skipper," Larkin urged.

Tensely and reluctantly Bob sat down again, glancing apprehensively at the sleeping form of Dr. Marsden. The scientist's face under the blue glow seemed set in a mask of death. For an instant Bob had disconcerting visions of a dead man. Then he saw the other's chest rise and fall with his heavy breathing. He gave a sigh of relief.

"Looks like the boys are looking for trouble, Allen," Larkin continued, whispering. "Your coming seems to have aroused them to fighting edge. I've been listening to their palaver. They're dynamite and all they need is a spark to set 'em off!"

"Have they got a chance?" asked Bob, listening intently to the grumbling. Larkin shrugged.

"Not a chance!" he gritted anxiously.

"What makes you so certain of that?" asked Bob, watching the aroused skeletons. Some of them were pacing restlessly back and forth across the floor, frequently haranguing the others. But their voices were drowned almost out by the droning hum of their grumblings.

"Because there's no way out of here," said Larkin in a tense tone. "We searched for a passage to the surface from the lake for two weeks before we were captured. If they made a break, their only retreat would be toward the lake, for the Subterraneans would come up from the tunnels. We'd be cornered like rats up above."

Bob remained silent. Almost exhausted as he was from lack of rest and nourishment, he was sleepless. Larkin watched him curiously.

"How do you figure to get past the guards on your way up to the rim, Lieutenant?" he asked at length.

Bob's eyes hardened.

"I think I can do it with your help," he said softly. "I've been thinking over a plan. But where's the flying machine you said you had ditched?"

"Right under me!" returned Larkin, glancing furtively at the guards.

One of them was gazing stolidly at Bob through unblinking eyes. Larkin's heart stood still as he wondered if the warrior had intercepted their thoughts by concentrating on them alone. He glared back coldly. Finally the guard turned his head and resumed his listless posture at the doorway. The engineer continued in a whisper:

"It's buried right under me," he said. "What's your plan of action?"

"Just this," hissed Bob without hesitation, and then he launched quickly into the details of his plan. Larkin listened intently, nodding his grisly skull in approval, as Bob unfolded his scheme to attract the guards away from the door to allow him a chance to slip into the corridor. "Now," he concluded quietly, "dig out your hidden flight gadget and taas-tube. If I make the rim safely and fail to find Patti's remains there, I may return to the yacht to search there for her."

Larkin grunted softly, glanced toward the guards to find them loafing carelessly at the door and then hunched himself aside. Silently he began scooping soft earth away from the spot on which he had been sitting. Bob watched the warriors tensely. After a moment he felt something shoved against his hip. He glanced downward. Beside him, hidden from the view of the guards,

lay one of the small Subterranean shoulder flyers. He gave Larkin a blank look.

"I don't know how to work the thing" he hissed.

"It's easy!" whispered Larkin. "Here!"

He pointed to a row of small buttons arranged on a metal strap that extended from the device. Bob had already observed on studying the flying warriors how the strap fitted. It was to fit across the left shoulder, down across the chest and under the right arm where it hooked firmly to the machine. Another strap ran from the right shoulder in the same fashion. The flyer fitted to the shoulders somewhat like a knapsack.

"These buttons control the thing, Allen," Larkin continued in whispers. "By pressing the topmost one, the one nearest to your throat, you start the propellers whirling. In rising you press the buttons from the top on down according to the speed you want. When descending you merely press them from the bottom up. This reverses the screw and lets you down slow and easy like. Now here's the taas tube, should you need it, old man——"

He glanced anxiously at the guards. Leaning as they were against the thick walls at the door, they seemed dozing. He continued:

"This tube also has control buttons on it," he said. "Number one, that closest to the business end, projects the brillia-ray. Number two shoots the hideo-beam and here—this one will strip a man clean of his flesh! Each button releases a more powerful beam than the one ahead of it. When you want to shoot a man off the earth entirely, you press the last button. There won't be even a fragment left of the target if you hit it with the ray this button releases! So there you are, Skipper. The rest is up to you. All I can do is to start a fight and attract the guards from the door. The rest is up to you. Good luck, old man!"

WITH that Larkin rose to his feet, hunched his shoulders forward and stalked toward the far end of the long room. Bob grasped the flight motor and taas tube tensely, careful not to let his palm or fingers press down any of the control buttons on either. He saw the engineer halt abruptly in the center of the room. Larkin glared at his comrades for a few seconds and then Bob heard his voice rising above the buzz of conversation. He called for silence and got it with difficulty.

"Listen, you guys!" he roared. "You talk like a bunch of half-wits! You'll be wiped out if you try a break! You ought to know you ain't got a chance. The time's not ready yet. Now don't start anything. Something's gonna break for us soon and I'm warning you to wait. *Hear that? Wait! Don't do anything!* Just watch and wait! What I'm going to do now is for a reason. Get that? A good reason! I want Jimson, Craig and Barlow to step forward! Lively now!"

Bob saw three skeletons detach themselves from a group that lay close together at the far corner of the barracks. Scarcely had they started forward than Larkin hurled himself at them, snarling fiercely. They seemed taken aback by surprise. Larkin's right arm shot forward. Bob heard the sharp smack of flesh striking flesh. One of the skeletons toppled over backward.

"Fight, you guys!" Larkin snarled at them. "Fight! It's for a reason! Come on!"

The two skeletons, sensing something of vital importance in the air, came toward Larkin eagerly now. Snarling and yelling curses, they went at it like hell-possessed demons. Instantly the four guards, seeing the commotion, rushed into the barracks, holding their taas tubes up like black-jacks.

Without waiting to see the results of the forced fight, Bob leaped to his feet, stepped over Dr. Marsden's silent form and slipped into the corridor, carrying his taas motor and tube. Nor did he pause near the door of the barracks. Instead he continued on until he encountered an abrupt turn in the tunnel. Here he paused and as if he had planned his movements to the second, he quickly slipped the motor straps over his shoulders and snapped the device into place on his back. It was so light in weight that he wondered suddenly if it had the power to cary him aloft when he would reach the open crater.

With his heart thudding against his ribs, he pressed the first button as Larkin had directed him. Instantly the small propellers began to spin. He felt them vibrating, giving him a peculiar feeling of buoyancy, lifting him to his toes. To test the device for his own satisfaction and safety, he gave a slight bound upward.

Instead of going up only a few inches, the machine lifted him almost to the roof of the glowing tunnel, letting him down again lightly. He was jubilant, knowing that with the additional power sent into it by the pressing of the remaining buttons, the machine would transport him into the air with perfect ease and rapidity. It made no sound beyond a low, almost inaudible hum of the *radon* motors incased within it.

Tensely gripping his taas tube, thumb placed lightly over the button that would release the weapon's most deadly ray, he went cautiously forward. As he went, he felt the machine grow warm against the bare flesh on his shoulder-blades. But he paid no attention to such trivials now. He was on his way at last to the crater's rim to learn what he might about Patti Marsden.

With utmost caution he proceeded along the corridor. The tunnel was a large one and went weaving snake-like toward the abyss. Others branched off occassionally and as he hugged the walls he passed a great room in which lolled a number of silent Subterraneans. His heart stood still when he encountered the door and it was a good minute before he continued on past it.

Otherwise, the corridors seemed deserted. He heard no sound from the barracks he had left in a turmoil. But he craved darkness to hide him from the view of any alert Subterranean. There was only the blue glow that illuminated the underground world constantly. He proceeded carefully, tensely, in full view of any Inner World creature he might encounter.

But he was not afraid. All fear had long since left him. His eyes blazed with the determination to get to the crater edge at any cost. Three human skeletons lay up there. One of them might have held the flesh of Patti. He hoped to find the truth, perhaps in scattered fragments of clothing, perhaps by a more gruesome means—that of comparing the skeletons with one another and judging by the sizes. As a last resort he had resolved to count the ribs. Then if Patti had been killed by the murderous Subterraneans, well, he might settle a double score, before they assassinated him.

Silence beat down upon him like the roar of a Niagara as he continued onward. He was like a lion stalking a kill, his taas tube held in readiness, every nerve taut to

the strain of his uncertainty. Suddenly he encountered another door. He paused to listen, but heard nothing coming from the room to which it led. Cautiously he went on.

At the door he paused and peeped in. A Subterranean was working on a taas ship just inside. Breathlessly he hugged the wall. Then, after a tense moment, he peeped in again. The creature had moved away from the machine and was standing with his back toward the door.

Quietly he went past, every muscle in his body tingling. Time and again he glanced over his shoulder to see if the Subterranean had detected his presence. Seeing nothing behind him but the corridor twisting away, he breathed a sigh of relief. Then before he realized it he found himself facing the open of the crater.

More alert than ever he hugged the corridor wall and peered into the open. Hundreds of skeletons toiled around the taas extractors. Unending lines trudged back and forth from the dumps to their respective machines. Subterranean guards watched over them. In the center of the crater stood a group of the grotesque creatures, as if engaged in some silent conversation.

Bob searched his immediate vicinity for a hovering guard. Fortunately for him none were nearer than the center of the abyss. He wondered if he could make a rapid ascent to the crater's rim without being observed. His hands trembled a trifle now. But he steeled himself to the inevitable. Make it or not, he was going to try. His blood raced hot, like searing metal through his veins. He breathed hard, keeping his taas tube in direct line with the group. Resolved to wipe them out at first indication of having been seen, he edged his way to the mouth of the corridor.

For an instant he paused there, determinedly. With his free hand he pressed the second, third and fourth buttons on his chest strap. Instantly the propellers on his back gained velocity. He was jerked violently off his feet and into the air, rising within a foot or two of the rugged side of the abyss.

Higher into the air—like a rocket, he soared. Eyes glued on the guards below; taas tube held ready, he watched the skeletons and their guards diminish in size as he rose. Then he saw the group suddenly disband and amble away in different directions. He wondered if he had been seen. He noticed one guard moving across the crater bottom at a swift pace. Then he realized that he was going beyond the rim.

IT dawned upon him suddenly that he had forgotten to ask Larkin how to operate the shoulder device for forward flight. He swore grimly as he overshot the rim and continued upward. For a moment he had visions of bashing his skull against the roof of the great earth bubble into which the *Scienta* had been drawn. Desperately he pushed the buttons to slow his flight upward. The propellers slowed magically. Yet he continued to rise slowly.

Then he recalled that he had seen the flying Subterraneans kick their feet in descending from their hovering taas ships. Hopefully he kicked his own, throwing himself off balance in the air. Jubilantly he felt himself being carried forward by the reaction. He realized suddenly that the feet played an important part in the flying of the machine, acting like the tail of a bird in flight.

Swinging his feet upward he was carried forward. But, unused to such motion, his legs grew suddenly tired. But not before he had been carried from above the open abyss. He looked down. The crater rim was directly below. Silently praying that he had not been seen, he pressed the buttons again. The vibration of the propellers decreased. Slowly he descended until his feet finally touched the ground.

He slumped over on his side and lay still, breathing hard. Realization that he had outwitted the ever alert Subterraneans, a feat Larkin had said was absolutely impossible, made him suddenly weak. Sweat streamed from his forehead and stung his eyes like fire. He ran a trembling hand over them and looked toward the opposite side of the crater. Far below he saw the laboring skeletons. They seemed no larger than dwarfs from the distance and gave no indication of any excitement taking place there.

But across the abyss lay his objective. He had dropped down in a small clearing that overlooked the crater. Around him the thick, impenetrable brush blocked any way of advance on foot. It broke off sheer at the edge of the crater. He realized, as he looked over the ground, that he would be compelled to fly around the crater to attain the other side. To fly directly across the abyss would be fatal.

But he must get to the skeletons now or never. If he ever hoped to learn of Patti's fate, the opportunity could not be overlooked or passed by. Yet, unaccustomed as he was to the handling of the Subterranean flight machine, he dreaded the ordeal of going into the air again.

It has been said that love will drive a man to do things, where all other incentives fail. It must have been Bob Allen's great love for Patti Marsden that drove him into the air again. He sent himself as high as he dared and guided himself around the crater with his dangling feet. As he went he realized that he was learning quickly how to handle himself. By way of experiment he tried various stunts by working his feet. He dove headlong, performed a complete loop, swung left and right, and by the time he reached his objective he was jubiliant over his success in mastering the Subterraneans' own means of individual flight.

But what he saw lying on the ground under him caused him to sober quickly. In various attitudes, three human skeletons, bones gleaming white against the ground, glared up at him. Keeping well out of sight, away from the crater's edge, he alighted near the trail and advanced toward them on foot.

He cursed softly, viciously, at the murderous Subterraneans who had stripped these bones of their flesh, snuffed out their lives with a single ray. With a great sob he bent down over a skeleton. It was smaller than the others, much smaller. The jaws hung open as if death had come in unspeakable agony. He studied the white teeth. They were small and pearly. His hands trembled as in palsy. A bit of dark hair clung to the skull. It was soft and alive, but shortcropped. Yet Patti Marsden had had hair like that, and it had been bobbed, shingled close in the back. He touched it with a shaking hand and looked again at the pearly teeth, wondering if the lips he had kissed there in the pilot house, had once covered them in the redness of life and youth.

His wandering eyes alighted on the ghastly hands. The bones, held together by hardened sinews, were

clutched tightly. *Mortis rigor* had set in, it seemed, on the instant of death. But something bright attracted his gaze. It was a wide-banded gold ring encircling a middle finger. It hung loosely around the digit.

With a grunt, the tone of which bore something akin to joy, he lifted the boney hand, pried the fingers open and slipped off the ring. Instantly he recognized it. It was the ring Dr. Marsden had bought for the cabin boy in Rio!

Why hadn't he thought of the cabin boy before? He had completely forgotten the presence of the youth on the *Scienta!* So the skeleton was not Patti's after all! It was that of young Stebbins, a boy scout, first class, whom Dr. Marsden had taken along on his expedition to Brazil! The boy had begged to go along. Dr. Marsden had yielded. But to what a ghastly end!

Bob Allen at that moment was both happy and sad. He was happy that the bones were not all that remained of Patti Marsden. And he was sad because of the unkindly twist of fate, that had snuffed out the life of the boy who was not more than seventeen, if that old. He knew at a glance that the other two skeletons were those of big men. They were too large for Patti's delicate frame.

He fondled the ring curiously. It was the same heavy, green-gold ring Dr. Marsden had bought for the boy at Rio de Janiero. He recalled the purchase clearly. With Dr. Marsden and Stebbins, he had gone the round of the Rio curio stores. The boy had seen the ring and had wished for money enough to buy it. It had been rather a big ring for so small a boy, yet Stebbins had wanted it badly. He had been struck by the weird design of the Chinese jade stone. And so Dr. Marsden had purchased it as a present for the youth in return for excellent services rendered aboard the yacht.

But why hadn't the Subterranean ray destroyed it? Or was the strip-ray powerful enough to melt soft gold? The jade stone was gone, melted to black crisp. He could see that. Certainly the jade was harder than gold. Yet the metal was as beautiful as the day it had come out of the shop!

Struck with a strange idea, Bob Allen stared at the ring. Was the gold, he asked himself, immune to the powerful radium rays? Or had the ring, by a twist of fate, merely escaped the same destruction as the youth's flesh? No! he told himself. In that event, the jade would also have escaped. There could be no other explanation for the ring. Gold was immune to the strip-ray! But was it immune to the most powerful of Subterranean rays—that which disintegrated human bodies and ore-dust, causing them to vanish in a puff? He wondered.

Suddenly he decided to test out his idea. If he destroyed the ring in the experiment, nothing was lost. If the ray failed to destroy it, did not cause it to vanish —then he had made a discovery of vital importance to his fellow-men on the Surface.

Trembling with excitement and eagerness, he crept far back from the abyss, halting at the mouth of the overgrown trail. Here he laid the ring on a flat, thick rock. Tensely he aimed his taas tube at the golden band. With a lightning-like touch of his thumb on the button, he released what Larkin had said was the Inner World's most deadly ray.

There was a hissing sputter as the blue flash stabbed out from the tube. The weapon recoiled slightly in his hand. But the flash was instantaneous, vanishing as quickly as it had been discharged. He had only meant to touch the gold band lightly with the beam, realizing that a prolonged ray might forever bury it in the earth.

He saw a small cloud of almost invisible blue dust rise up from the suddenly vanished rock. Eagerly he laid the tube aside and looked for the remains of the ring. It had vanished. He gave a grunt of dismay, but ran his hands through the dust that remained.

In a moment his fingers touched the ring. Jubilantly he brushed it off. It seemed to have been untouched by the ray. Under a thin coating of blue dust, the gold glittered as brilliantly as ever. He clutched the relic of death—and life, fondly, beaming with the happy realization that gold and perhaps gold alone was immune to the terrible taas rays of the Subterraneans! He could have performed a dance of joy at that moment, for he had by chance discovered a means for protecting his people on the Surface from the deadliest of rays produced by the Inner World murderers, the Subterranean assassins!

CHAPTER VIII

LIEUTENANT Bob Allen showed no further interest in the three skeletons lying, stripped of their flesh, on the crater's rim. Neither of them had once held the soft, yielding flesh of Patti Marsden. To him now, as he sat near the trail, meditating silently over his chance discovery that gold was immune to the destructive rays of the Inner World, they were just bones. And he had grown more or less hardened to human skeletons since his arrival among the Subterraneans. He did, however, feel the pangs of pity and sorrow for his unfortunate companions who had met death on the rim. But they were beyond all earthly help now. Therefore, they must be forgotten in place of more important thoughts at hand.

Those thoughts were: How could he get a warning to the Surface that the cruel warriors of the Subterranean were at the final hour of their carefully laid plans to strike the death knell to all humanity? How could he warn his people that only gold was immune to the terrible rays of the Inner World? If he could get word through to them the Surface armies and navies might successfully defend themselves behind shields of gold! But was there any way of escape from this dreadful world of the living dead? And where was Patti Marsden? What had happened to her? Was she alive or dead? Had she been taken captive or had she somehow managed to escape back to the *Scienta?* Was she, like the three skeletons on the rim, beyond his—all earthly help?

He resolved with grim determination to continue his search for her, meanwhile to look for an avenue of escape and to rack his tired brains for a way of sending an urgent warning to the Surface. Wearily he picked up his taas tube and with the aid of the spinning propellers on his back, he arose to his feet. As he did so, he felt a strange sensation of being watched. Something like the prick of a pin at the base of his skull caused him to grow suddenly tense. He knew instantly what it was! He had been discovered by the Subterraneans and they were projecting their thoughts into his brain by means of their strange powers of mental telepathy.

Instinctively he tried to hide his taas tube close to his body, while his eyes searched the terrain before him for

a glimpse of his enemies. Suddenly he sensed their presence behind and spun around, crouching. His eyes popped in alarm. Standing close to the thick brush almost at the edge of the abyss, were three grotesque, hostile warriors of the Inner World.

The creatures, unobserved, had for some reason ascended to the rim. They stood side by side, glaring menacingly, taas tubs upraised before them, ready to send him to his death. His blood seemed to freeze in his veins. But he kept his head and returned their unblinking stare. He felt that his death was only a matter of seconds now.

The uncomfortably tickling at the base of his skull continued. He knew that one of the creatures was projecting his powerful thought-waves into his mind. The vibrations grew stronger, impinging on his brain with deadly, menacing force.

"I saw you ascend to the rim, O dog of the Surface!" the Subterranean warrior finally informed him, stamping his thoughts indelibly on his brain. The sting of the vibrations made Bob wince. "You sought to escape from where there is no escape! Death will be your reward!"

"I only sought to learn about a loved one, O brave warrior of the Inner World!" snapped Bob with all the sarcasm he could muster. "I came up merely to see if that loved one was among the skeletons on the rim!"

He clutched his taas tube tightly, thumb hovering over the dread buttons. In an instant, he felt, he could jerk the weapon from behind him and in the same motion send at least one of the warriors to his doom. But his enemies were not to be caught napping. They held their death-tubes in direct line with his torso, ready to release their deadly rays at any instant. Yet he was sure in his mind that he could kill one, maybe two of them, even as they sent him to death.

"You will keep the skeletons company, O dog," the warrior projected ominously. "When we finish with you! Death is the penalty for runaway slaves! You shall die like the others, with the flesh stripped from your bones! But first, O dog of a slave, we shall play with you! We shall make you tell where you obtained the taas flyer!"

Bob Allen, realizing that they meant business, stood his ground like a stone image. The Subterraneans' cobra-like eyes glared at him with unblinking steadiness. They made him feel a bit dizzy as they concentrated their minds on him, like snakes hypnotizing a bird. Certain that they meant to destroy him, he felt reasonably assured that they had not observed that he possessed a taas tube with which he might defend himself. The warrior had as much as said so! Then he found his voice.

"Supposing I refuse to tell you where I got the flyer?" he hissed through clenched teeth. If he was to die, he had suddenly resolved to die in silence, like a man, and tell them nothing. To tell that Larkin had given him the flyer would mean that the engineer would be put to death without ceremony. He was not afraid, he told himself. But if he could, he would take his enemies with him into death.

"There is a way of making you tell, O dog!" the warrior vibrated. "It will not be pleasant! It will be an enjoyable revenge to see you die slowly for having killed one of our brothers to obtain the flyer!"

"Kill one of your brothers?" Bob frowned. "I killed nobody!"

"The Surface creature lies!" the Subterranean hissed. "How else could you obtain a flyer?"

"That is for you to learn, O sons of a snake!" snapped Bob, crouching like a wolf at bay. "I will tell you nothing!"

"Then where, Surface dog, would you like us to begin stripping off your flesh?" the warrior waved his taas tube threateningly "At the feet or at the head?"

"You're a bunch of dirty murderers!" Bob hissed back.

He had his thumb on the last button of his taas tube now. Slowly he was bringing the weapon around to his side for a quick aim. Apparently the Subterraneans had not observed it. Certainly they could not detect its presence by reading his mind, for Bob Allen wisely was thinking of something else. He was thinking only horrible thoughts of ripping out his antagonists' throats with his bared fingers. He continued jeeringly.

"You're a bunch of yellow cowards, afraid to meet a man face to face!" he snarled. "I could kill the three of you with my bare hands!"

"We do not wish to die, O dog!" the warrior projected. "But supposing we should fight you your way, like a savage beast, with teeth and nails?"

"I would tear you limb from body!" snarled Bob, hoping he might taunt them into fighting him his way.

Suddenly he thought he detected a movement in the brush behind the murder-bent warriors. His heart skipped a beat as he thought Patti might be hiding there. But no, it couldn't be Patti! Only a sleek animal could penetrate that wall of shrubbery. It moved again. He glanced at the Subterraneans. The creatures were glaring at him, tubes ready to send him to death.

The brush behind them parted stealthily. At the same instant there came within Bob's vision, the crouching. Satan-faced figure of a monster jaguar, eying them with a malevolent stare. The great cat, flattened on his belly, eyes gleaming like twin balls of fire, remained motionless except for its twitching tail and snarling lips. It lay not more than a dozen feet behind the menacing Subterraneans who stood close together, side by side.

Bob Allen gulped hard as he stared as if transfixed at the gleaming eyes of the beast. The jaguar began now to creep forward, ears laid back, teeth bared, every muscle taut for a sudden spring. And he knew that particular jaguar, for he had helped Dr. Marsden trap it far up the Amazon! It was no doubt the very same beast that had bounded over the bow of the *Scienta* as the yacht buried her nose in the sandy beach of the subterranean lake!

He could have recognized that particular jaguar almost anywhere, for it, like its mate which he had killed on the *Scienta's* deck following its escape from the water-filled hold, was the largest cat of its species ever taken alive. This beast seemed even larger than a full-grown lion. He watched it in awe, purposely keeping his mind on other things, so that the Subterraneans might not penetrate it and read of their impending danger.

Closer and closer the beast wiggled. Driven to madness by starvation it was now ready to attack anything. It had no fear of the Subterraneans. Flesh was flesh whether it be on the bones of Inner World or Surface men.

Suddenly the beast charged forward in great, silent bounds. One of the warriors, sensing the presence of

danger, turned his head. Instantly he saw the great cat behind him. But too late to save himself. The jaguar had already left the ground in a mighty, death-dealing leap, legs far outstretched, claws unsheathed, fangs bared in a ferocious, hungry snarl. It bowled over two of the Subterraneans and slashed at the third, ripping his throat wide open with its claws.

Taas tubes were sent flying. One of them landed within Bob's reach. Quickly he picked it up. He aimed both weapons at the jaguar and its tangled victims, but withheld the rays. He saw the great cat close its powerful jaws over a warrior's crow-like face. There followed the dull crunch of splintering bones.

Frantically a slashed Subterranean tried to get his taas tube into place. But so ferocious, so intent upon the kill was the hunger-maddened beast, that he had no chance. A mighty paw sent him, still clutching his weapon, rolling aside from where he lay, blue blood oozing from his torn throat. Bob thought the beast had killed him with a single blow.

He watched the the ugly sight with a sense of relief and a realization that again he had been spared. He felt a sudden warmth in his heart for the jaguar that had appeared so timely to save his life. If he ever owed a debt of gratitude, he told himself, as he watched the beast settle down over two of the warriors to gorge, he certainly owed it to the big jungle cat he had helped Dr. Marsden trap and cage far up the Amazon.

Shaking inwardly from the strain of facing death, he turned away from the jaguar's ghastly kill, knowing that it would not attack him while it gorged. Resolved now to visit the *Scienta* at the lake, hoping that Patti might have gone there, he pressed the buttons controlling his taas flyer, and rose slowly into the air. Without looking back, he guided himself away from the crater, over the tangled brush and up toward the summit of the mountain down which he had climbed with Patti not long before, unsuspecting what might lie at the foot of its perilous trail.

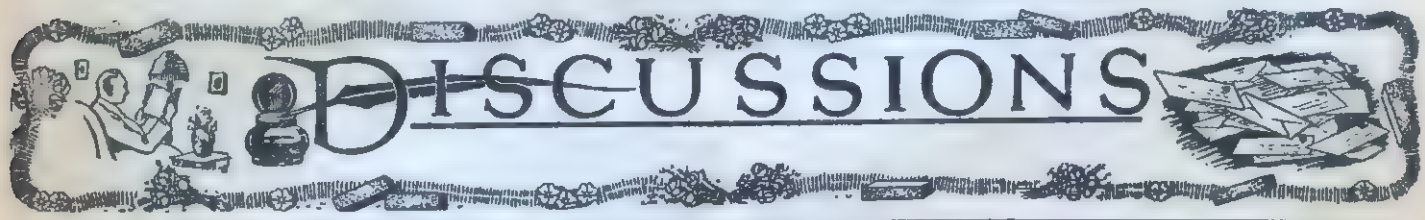
But suddenly a thin beam of blue light stabbed the space not a dozen yards ahead of him. So close had it come, so menacing and powerful was it, that he heard its sputtering hiss. It was like the hiss of a venomous snake. He kicked his feet frantically to change his direction of flight for a look back toward the crater.

Far below on the crater's rim the great jaguar was snarling over its kills. But just above it and rising fast into the air was a flying Subterranean. Bob noticed quickly, despite the distance and the blue gloom, that one of the injured warriors had some way managed to draw away from the ferocious beast and take the air. The warrior was rising swiftly, but drunkenly, as if he had lost control of his flyer.

From his taas tube shot another blue ray. It hissed closer to its human target this time. Instantly Bob realized that the jaguar-mauled Subterranean was trying desperately to destroy him in the air. Only the creature's terrible injuries had interferred with his aim.

Glancing down into the crater, Bob saw a score of pygmy-sized objects dart suddenly into space, rising toward the rim. Recognizing pursuit he quickly aimed his two taas tubes at the ascending warriors. Grimly he pressed the buttons. The weapons recoiled slightly in his hands. He saw twin-beams flick out of the tubes. Thin puffs of blue smoke took shape in the crater as half of the ascending Subterraneans vanished. Again he pressed the buttons. Again the deadly beams hissed forth on their mission of destruction. He found the air in the crater suddenly cleared of everything but thin puffs of smoke. He grinned coldly, realizing that at last he had begun settling his score with the gargantaun warriors of the Inner World. Another blue beam from the injured warrior hissed through the space directly above his head. The creature came on, murder-bent.

END OF PART ONE.



In this department we shall discuss, every month, topics of interest to readers. The editors invite correspondence on all subjects directly or indirectly related to the stories appearing in this magazine. In case a special personal answer is required, a nominal fee of 25c to cover time and postage is required.

"SKYLARK OF SPACE" ISSUE OF "AMAZING STORIES" WANTED

Editor, AMAZING STORIES:

I received the July AMAZING STORIES this morning. It is the first of my "subscription" numbers and I have not yet had time to read it although I have been lucky enough to secure a good many back numbers since I became aware of the existence of AMAZING STORIES. I am looking forward to a year's enjoyment when my "Quarterly" comes through.

In my opinion you have no one to touch Dr. Smith as a story writer of the more imaginative type. His style is easy to read and holds the attention from the beginning—it may be a trifle "colloquial," but after all few, if any, normal people speak "correct" English. I would a thousand times rather have Seaton's striking, if rather pungent slang, than stilted, correct conversation. I was very lucky in managing to get hold of the three numbers of "Skylark Three"—some story! But only one number of "Skylark of Space" and one of "Spacehounds"; I expect there will be no chance of completing the "Skylark of Space," but perhaps I might stand a chance of getting the other two numbers of "Spacehounds." I require July and September issues for 1931. I have written twice to your representatives in London asking if I could obtain back numbers but they preserved a stony silence on the subject. Please, Mr. Editor, if possible, do your best to let me have these two numbers—what I read in the August issue has only whetted my curiosity.

I also like Campbell as an author—his science is as good as Smith's, but his stories have not the same swing—and, after all, no matter how good the idea or plot behind the yarn, it must have that "something" which makes one forget time and place and wake up at the end rather breathless—Smith undoubtedly has that.

However, good luck to them both—and I hope to read something from each of their pens in the near future.

Dr. W. A. GIBSON,
14 Hopetown St.
Bathgate, Scotland.

(If you will follow up in our "Discussions" columns letters from correspondents saying that they have back numbers, we think you will have little or no difficulty in getting the "Skylark" issue. We like what you say at the end of your letter about the undefinable "something" that we want in a story.—EDITOR.)

A LETTER FROM A NEW READER OF AMAZING STORIES

Editor, AMAZING STORIES:

Though I am a new reader of A. S., having read it for about two years, I just have to tell you how much I like the latest serial, "The Swordsman of Sarvon," by Charles Cloukey. It is by far the best science fiction story I ever read.

But the September issue is counterbalanced with the story, "The Romance of Posi and Nega." That story did not seem quite right. Perhaps electrons have life; no one can say they haven't—yet. But if so, their intelligence would be of such an entirely different nature than ours that it would be impossible for an Earthman to write a story in conversation about them. For instance, their emotions would not be emotions as we know them. What

I mean to say is that it would be an extremely rare occurrence for the inhabitants of any two worlds (or energy-forms—energy and matter are the same thing—such as Mr. Skidmore's atomites) to use each other's latest slang perfectly naturally as Posi and Nega used ours. No two civilizations could be so alike as to be that sympathetic.

But, on the whole, your (our) magazine is pretty good, though not as good as it used to be. When do we get a sequel to last year's "Luvium"?

Let's have some more stories by A. Hyatt Verrill. And what is the matter with Harl Vincent in the Monthly?

Just the same, AMAZING STORIES is my Stf. magazine.

ROBERT BARNES,
602 4th Ave., East,
Williston, No. Dak.

P.S. I like the "Reprint Annual" idea.

(We agree with you in your estimation of the "Swordsman of Sarvon." Giving a personality and emotions, such as we know them, to electrons and atoms we think is perfectly fair in a purely romantic piece of fiction. The story of the romance of Posi and Nega is of course quite fictitious, but it is perfectly good practice to personify the atom and the molecule and on investigation we are sure you will find it to be very good rhetoric. We feel that Harl Vincent is one of our firm friends and shall hope to get many more stories from him.—EDITOR.)

A CORRESPONDENT IN CZECHOSLOVAKIA

Editor, AMAZING STORIES:

I saw AMAZING STORIES for the first time about five years ago and read it occasionally, but now I rarely miss one number. The Quarterly edition I cannot get here. If I use a direct subscription I find that you have also admirers on the Post and very often a number is lost, that is the reason I do not subscribe directly.

Why do I write to you? I am feeling that I ought to tell you how much I like your "mag," and that it is always a happy day for me when it comes. It is true that I do not enjoy each story so much, but I do understand that it is not always possible to suit all.

For myself I like the interplanetary stories best. They must not be too scientific. Sometimes too much science is also a nuisance.

Among the last stories which I like best were the Lemurian Documents. I hope you have still many "Spacehounds of IPC"—won't they come any more? And most of all, "Across the Void." It is really a pity that it is finished. In short, I like A. S. best of all magazines. The day I receive it here I always finish it to the last editorial. Only one wish I have: A. S. ought to be a weekly and of the size of the Encyclopedia Britanica. Naturally with the same rate for subscription. I wish you still greater success and a hundred times as many subscribers.

J. I. TUMA,
Praha I., Celetna,
Czechoslovakia, Europe.

(The writer of this very pleasant letter apologizes for any imperfections in his English. We have changed a few words to make it a little smoother. It is always of great interest to us to get letters from distant countries and it is gratifying to feel that we have so appreciative a reader in the new country, new since the war. You are perfectly right in your statement that it is not possible to suit all. Our "Discussions" columns give some very curious instances of various tastes among our readers. The last clauses of your letter are enough to make a modest editor blush, you compliment us so highly.—EDITOR.)

A VERY INTERESTING LETTER FROM ENGLAND

Dear Sir:

I find August AMAZING STORIES very good, so far as I have read it. I have managed to obtain 2 numbers of 1926, 2 of 1929, some of 1930 and all 1931. I could have had some more back numbers if I had been able to pay 3/– a copy but this I felt unable to give. At present I get the monthly issues at Birmingham about the 23rd of the preceding month. I have worried them enough for the Quarterly which, however, I expect will be there this week. I can also get back numbers in Birmingham at reduced prices, I intend if possible to possess a complete set. A Danish friend in Denmark is also enjoying A. S.

Judging from my experience of back numbers, AMAZING STORIES is improving. I cannot understand some of your critical correspondents. In my opinion A. S. is definitely advancing. It is so good that improvement is difficult, but men's judgments of perfection are very various. Months should not be compared with months, but years with years. Nor should readers expect nothing but interplanetary stories. AMAZING STORIES authors have already peopled the other planets with incompatible inhabitants. I also fear that the Lunarians of the "Lunar Chrysalis," if inferior in resources, would have been exploited and despoiled by the Terrestrians.

Referring once more to the Sages of Eros, Dean Swift would have been unmerciful to them, as he was to Sir Isaac Newton (Gulliver in Laputa). Dean Swift is dead, but you have revivified him in "The Blue Barbarians" and perhaps in "A Voice Across the Years."

I am glad you were able to include a story recently by an English author. If you should decide to issue reprints, let me ask for "The Conquest of the Moon," by André Laurie, a delightful story of 1884, and W. H. Hodgson's, "The Night Land" (abridged edition).

Returning to "that much" and "that long," the reference is to the "Wide Wide World" (irreverently nicknamed The Book of the Tearful Ellen) and to Chapter XVII. My preference is supported by "Modern English Usage," by H. W. Fowler, Clarendon Press, Oxford, 1926; not a pedantic work.

"THAT. The adverbial use (when I was that high; he was that angry) is still more unliterary; and in spoken English it now passes only where, as in the first example, actual demonstration with the hand is possible; where it is impossible, as in the second example, 'that' is held uneducated or vulgar." I also noted that Professor Jameson found contemplation restive, whereas we now say restful, but in old English restive = restful. (Our hero must not die but remain eternally enthroned in the heavens.)

Finally let me say that my age is 46, but I have a friend of 22 who is not a book worm. He agrees with me that AMAZING STORIES should attract both old and young and excels its contemporaries in very many respects.

So good luck and long life to AMAZING STORIES from

FRANCIS H. P. KNIGHT,
152 Harden Road,
Leamore, Walsall,
Staffs., England.

(Staffs. = Staffordshire; Walsall pronounced Waws'l or Wawis'l.)

The French title of André Laurie's work is actually "Selene Company Limited."

(This letter is gratifying in its opening clause where it says that AMAZING STORIES is improving. As far as back numbers are concerned, you will find numbers of correspondents whose letters are printed in our "Discussions" columns who have back numbers for sale and you should have no trouble in getting all you want. We are positive that many of them could be bought at the standard price. You compare two of our authors to Dean Swift; this ought to make them very proud, as it is a compliment of the highest order. Our impression is that the use of the word "that" as an adverb is almost typically English—you rarely hear it in this part of the world. We shall certainly hope to hear from you again from time to time.—Editor.)

AN OLDTIME READER WHO HAS COPIES OF EARLY ISSUES FOR SALE

Editor, AMAZING STORIES:

Your magazine is getting better and better as the months pass by, but I still maintain that you will have to improve a great deal more if you wish to reach the quality of literature attained by AMAZING STORIES in 1926, 1927 and 1928. In those days stories by A. Merritt, Burroughs, Garret Smith, Verrill, Wells, and many other masters were published in AMAZING STORIES. However, that reflects no dishonor upon the quality of those that you publish now, for they are very good also.

I have been making a sales talk, if you did not know it. I have bought and read and re-read every issue of AMAZING STORIES since the first one, which was in April, 1926. I also have almost all the Quarterlies. Knowing that there are many science-fiction readers subscribing to AMAZING STORIES who would give a great deal to get hold of some of the first

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issues and any that they have missed, I am willing to sell the ones that I have, which is more than one hundred. I have two of several issues.

Anyone who desires to buy any issue prior to 1932 can communicate with me and get the list of magazines that I have, and I wish they would do so as soon as possible.

I also have back issues of several other science-fiction magazines.

I would be very thankful to you, my dear Editor, if you would print my letter in your reader's column, for I would like to give someone else a chance to read the stories of those long ago issues. I offer to sell these old issues only because I have read them so much and because I believe that I ought not to be the only one to enjoy their wonderful science-fiction.

In advance, I thank you for publishing my letter in your reader's column, for is it not for the benefit of the readers? And is not my offer a chance to please many a science-fiction fan beyond all hopes of retribution?

WARD ELMORE,
3022 Avenue K,
Fort Madison, Iowa.

(We are very glad to publish your letter. If the Editor succeeds in keeping up the standard of the magazine to a proper level, perhaps he should be content, but it is much nicer to feel that our definite efforts and improvements are telling their story.—EDITOR.)

A LETTER FROM AN ENGLISH READER AND A WELL WISHER

Editor, AMAZING STORIES:

I have been reading AMAZING STORIES ever since I saw one in a News Kiosk in Shaftesbury Avenue leading from Picadilly Circus. It costs me 2/6d, 60c in your money, that is before they could be got in Woolworths for 3d (6 cents).

A great number of your readers moan about some of your stories. Well, they can think they are lucky they don't live this side. If they tried to read the stuff we get dished up here in the only paper that even attempts to publish scientifiction, they would crawl painfully away to a quiet hole and slowly expire. The hero sits in a rocket plane and flies at about 3,000 miles an hour and shoots the villain down, but the villain continues to save his skin and pinches the hero's girl. Will she escape?—See Next Week. The airplane doesn't even get warm through flying at this speed through the atmosphere. Or else a tribe of schoolboys go to Mars in the proper space ship, they conquer the Martians during the struggle. One-half of the plane is made red hot by the external heat generated by the Martians, it cools off, however, in an hour or so—idiotic. Of course, as you know, authors do not get so much money in this country as in America and as an old saying goes, "You can't get something for nothing in this world."

With regard to the scientifiction in the pictures (movies) I am afraid our present-day producers are not broad-minded enough to conceive anything other than girls' legs and violent love affairs with a scandal or two. I hardly ever go to the pictures now; they get my goat. If you were to have one of your authors write a story in which a young scientist is shot to Venus in a bullet to find it filled with beautiful women who wear nothing but their own hair, with a powerful love affair (or better still two love affairs), our marvelous producers would most probably call it a good story and consider its production. As for the love affairs in your stories, well, every one likes a little romance, but as our picture producers fail to see, one can have too much of a good theory.

As for your stories, I have not come across anything so good as "Skylark" and its sequel "Skylark Three." It is difficult to pick holes in either, at least in the instalments which I read. I also like "The Green Girl." I think that was the title although I can hardly imagine a gas with the property of holding up an enormous volume of water. The story "Power" was very good, too.

A. C. HOILE,
School House, 75 Sand St.,
Woolwick, S. E. 18,
London, England.

(We appreciate your kind letter. It is an interesting feature of our Discussions Columns that we get so many letters from foreign countries. AMAZING STORIES is a very good traveler. There is an idea here that the producers of moving pictures and talkies, as they are called with us, are awaking to the value of scientific productions and we hope to see, in the future, some of our stories on the screen—one is already in the hands of one of the great firms; so you see that in America, at least, we have hopes for the future.—EDITOR.)

THE GRAVITY CONTROL SCHOOL

Editor, AMAZING STORIES:

We observe in the August AMAZING STORIES an article under the heading "Discussions" having reference to the nature of "Gravity" as "pushing" the atoms together.

For the information of every one concerned allow us to broadcast the statements made relative to "Gravity" by the "Gravity-Control," a new school of universal mechanics recently organizing.

The "Gravity-Control" proves that the temperature in space using Newton's law of radiation on the figures supplied by Professor Piccard, would be minus 780 degrees Fahrenheit (below zero) 40 miles away from the earth and using the same system even a few hundred miles from the earth the temperature would drop several thousand degrees below zero. At about 750 below zero Fahrenheit matter is proved to shrink out of existence, resulting in a vacuum as great as the displacement of matter, it being the case that the "Space" holds a condition as if it were filled with solid stone, then stopping the vibration of the atoms because of there being nothing to agitate them. The bottomless cold sets in and the "matter" shrinks away and in its place is the vacuum which is then a greater force of static electricity or suctional hungers. The "Gravity-Control" proves further that this "Space Gravity," because of its furious cold, drove the atom, these later traveling under stark fear, to seek the various planetary centers in the universe existent and that the space is lying out there with threatening overpower to hold the planets down in form and order, while the natural mechanisms of the space are operating the elements to bring intellect out of the "matter."

The "Chapter A" of the "Gravity-Control's" "General Universe" deals with this at some length and the remaining chapters of the "Gravity-Control's" "Alphabetically Vibratory Universe" explains the balance so as to connect the beings themselves up with the universe. The "Gravity-Control" is prepared to prove its every statement, using every scientist on earth to prove it and all the philosophers and all the facts that every one knows. "The Gravity-Control" does not merely "believe" it to be so, it proves and shows how men came to live, what they live from and why, and precisely how "gravity" is made and why.

G. P. OLSON,
Sheldon, Iowa.

(This letter we publish and leave it to tell its own story as there is not detail enough given to bring out anything like an adequate criticism.—EDITOR.)

A LETTER OF FRIENDLY CRITICISM

Editor, AMAZING STORIES:

Morey did a fine piece of work for the July cover of AMAZING STORIES. In fact the issue as a whole was very good.

"Sheridan Becomes Ambassador" would have made a fine long story. I am hoping for a sequel.

"The Metal Doom" ended as I had hoped it would. It should have been published in two parts as it was rather short.

Hart Vincent continues to give AMAZING STORIES his best works.

"The Lemurian Documents," I hope, will continue for a long time to come.

Morey has done some fine work for our magazine, but I do not think that you should be partial to him. Some time ago you mentioned that you rather liked many artists to illustrate AMAZING STORIES. I like several artists provided they are good ones. Paul, Wesso, Marchioni, Jno. Ruger and Morey have all done good work in science-fiction illustrating. Why not use them all? I think you would then satisfy all readers in the matter of illustrations.

I hope that Edmund Hamilton and A. Hyatt Verrill will return soon.

JACK DARROW,
4229 N. Sawyer Ave.,
Chicago, Ill.

(We are very glad that our work pleases you. An Editor occupies the peculiar posi-

tion that he has to take cognizance of each story as it stands and also has to keep a sort of mental record of what his readers want. His function is to please them by giving them good literature and science and by maintaining the standard in all respects it may even have an educational value. Our effort is to make AMAZING STORIES a good magazine and absolutely it must please its readers. We have almost established a staff of writers as it appears quite clearly from your letter. There is a reason for our being somewhat limited in our choice of artists and we are very glad to get your favorable comment on Morey. He does a good deal of our work. We consider him and Wesso pretty much on a par. "The Lemurian Documents" have ceased their course for the present.—EDITOR.)

A VERY NICE LETTER FROM MISS ROBB

Editor, AMAZING STORIES:

Doctor Smith's vigorous onslaught recently, in reply to my campaign of "misrepresentation," is one which should imbue most critics with a wholesome respect.

The worthy Dr. has taught me one thing. And that is never to rely on others for your information. Being a rather busy person, I was foolish enough to ask a friend to extract Dunark's slang. I am not trying to dodge my medicine, but I should at least like it to be understood that the misrepresentation was innocent. However, as in duty bound, I must offer not only Dr. Smith, but my fellow readers, my profound apologies.

And now, Dr. Smith, my Irish blood refuses to allow me to drain the successive doses of gall and wormwood so lovingly prepared, in utter silence. Let us scan Dr. Smith's denunciation.

1. A red herring. We will leave our friend holding it in both hands, anyway. The mention of Mr. Campbell's name, seems, from his sarcastic remarks, to irritate Dr. Smith somewhat.

2. Letters. Heavens above. I hope Dr. Smith does not think I am so absurdly conceited as to imagine that I have received even one letter to his hundred. As a matter of fact I have today received the first intimation (more expected) to mind my own business.

3. Logic and counting atrocious. Hear, hear. Liberal quantities of sackcloth and ashes.

4. Oh, Doctor Smith! Who is guilty of misrepresentation this time? Will all readers sufficiently interested please look up my letter in the June issue. I should have thought it obvious to anyone that my allusions to consistency and verisimilitude applied to these qualities in connection with *l'affaire Danark*, as indeed they were meant to. Dr. Smith says, "When it is declared without even an *attempt* at proof, that consistency and I are complete strangers, etc." If my remarks, now disproved, were not an *attempt* to show lack of consistency and of *verisimilitude* in connection with Dunark's alleged omission of slang after the action of the mechanical educator, will Dr. Smith kindly tell me what they were. Dr. Smith is quite entitled to jump on me for incorrect statements; but when, in his efforts to add to the effects of the debacle, he resorts to stripping words from their context, and thrusts sweeping generalizations into my mouth, which I never uttered, I must voice a strong protest.

5. Who has suggested that the book, "Cruelty to Words" bars colloquial language in conversation in character-drawing? I, for one, have not. Please read my letter again Dr. Smith.

6. No offence intended, please.

The rôle of champion I decline for obvious reasons. Let us leave the side issues, such as repetition, on which, by the way, Dr. Smith is mute, and remember that the principal issue of this correspondence was slang. I am one reader, and though I seek to ram my opinions down no one's throat, I am, I hope, entitled to a fair hearing.

To some, no doubt, it may appear a little unfair that I have seized upon Dr. Smith, with his relatively small doses of slang, as the target of criticism. The answer is that if you with to air a grievance thoroughly, you must select someone big enough to do it for you. The bigger the man you are up against, of course, the more remote the chances of a favorable hearing. However, I come from a land of lost causes. Let us leave Dr. Smith, who has given the matter the necessary publicity, by involving his name in the correspondence, and move to broader issues.

In the name of sanity, what would the world think of the works of Merritt, Wells, Verne and others of the exalted, had their fantasies of the future been deluged with the current slang of gangster and Wild West fiction? Super-men of science, with loose, distorted, degraded travesties of speech, are far more difficult for me to believe, than the most incredible happenings foreshadowed in these stories.

The responsibilities of a well-known writer do not close with the completion of a manuscript. At that point, on the contrary, they commence. The majority of the readers of A. S. are young and impressionable people. One swallow does not make a summer. One Dr. Smith will not make the world talk like a Chicago thug. But multiply Dr. Smith by *x*, the unknown quantity, and what is the logical inference? Slang is becoming more prevalent every year, due, *inter alia*, to the subtle propaganda of the printed word. It is a question of cumulative effect. In the scientifiction world, Dr. Smith is the villain of the piece. I think I am correct in saying that he was the first author of repute to import slang into his stories.

Other authors, meditating upon his triumphant reception, would appear to have attributed his success to the slang rather than the vital qualities constituting a good tale. They acted accordingly. Now we have slang in ever-increasing quantities; very little else in some cases. Not only is slang inflicted upon us, but, as has been pointed out recently, the latest innovation is spitting. Lord knows what will happen next. Here we have the trend of the ultra-verisimilitude school. I read three scientific fiction magazines, and you can't get away from it. Now with all due respect, I contend that Dr. Smith is the vicarious Father of part, at least, of this monstrous brood. To the best of my knowledge the whole thing dates back to the time he departed from the beaten track. Do we want a world, and a magazine in which nothing but slang is spoken? Does the contemplation of such a prospect appeal to Dr. Smith? Does it appeal to the thinking section amongst my co-readers?

The choice, to my mind, is between literature in its true sense, education, refinement, and elementary decency on the one hand, and the uncouth jargon of gangdom on the other, together with its loathsome promise of further vulgarities foisted upon us in the sacred name of Verisimilitude.

Twentieth century slang and spitting. What a vision of the ultimate Utopia! All that I now ask is to be allowed to retire into obscurity. Many thanks to you, Mr. Editor, for your indulgence. For what it is worth, you now have the opinion of one reader, who by the way does not pretend to speak perfect English, and is not a school-teacher. And now, in their own language, give the apostles of expectoration "a break."

Yours for less slang,

OLIVE ROBB.

(The French have a saying which may be rendered, "Style is the Man." Taking a comprehensive view of Miss Robb's letter, we are inclined to say "Style is the Woman." We cannot help thinking that Dr. Smith's great popularity as an author makes people accept with pleasure his slang. It certainly seemed to fit in very well with the characters using it, and probably affected a foreigner much more than it would a native of these United States of ours. We have greatly admired Miss Robb's presentation of her side of the controversy and we note particularly that she seems to have an endless fund of good humor. She and Dr. Smith in their controversy both have exhibited this trait, neither gives in to the other, yet there seems to be a bridge of friendship across the Atlantic for these two people. Miss Robb's letter is so very good and so good natured that it can certainly speak for itself.—EDITOR.)

A LETTER FROM PROFESSOR JAMESON'S CREATOR WHICH WE ARE SURE WILL INTEREST HIS ADMIRERS

Editor, AMAZING STORIES:

It gives me a great deal of pleasure to learn that Professor Jameson has so many friends, and I am really glad to clear up any uncertainties regarding the adventures of this cosmic wanderer.

A reader suggests that the professor should have lost his brain under the power of the Tripeds' transition rays. Indeed, it was certainly a rash move on his part when he en-

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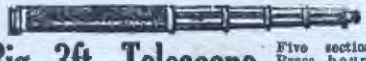

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tered the transition cube the second time after having witnessed the varying effects the green rays had upon metal and flesh. Right there was when he stood in the greatest danger. Let us excuse the professor's impetuous act, however, when we stop to consider that he had a personal score to settle with the Emkls. He had seen his faithful comrades wiped out by this grim horde from the blue dimension, and upon entering the transition cube thoughts of vengeance totally eclipsed caution. Professor Jameson was favored by luck. It was by luck that the Zoromes discovered his rocket satellite in the first place, and it was by luck that he survived the ordeals of the transition cube.

As the narrative states, the first application of the green rays was sufficiently strong to affect organic substance but too weak to register upon inorganic material such as metal. Fortunately, Professor Jameson's brain was entirely encased in the metal head. The metal shielded the brain, the rays being too weak to penetrate metal. Otherwise, as the reader suggests, the professor's career would have terminated then and there. The professor failed to realize his danger until it was too late, just as his brain reeled into oblivion from the second application of the green rays, this time increased to stronger intensity. The explanation of this problem escaped the professor's attention in the startling events which subsequently followed. The fuzzy stilt walkers, you will remember, gave him no time for calm and sober meditation.

Why didn't the machine men rust to pieces at the bottom of the ocean? Because their metal composition, like lead and other present-day metals, was impregnable to rust. Undoubtedly, it was a metal yet unknown to us—perhaps it was a complicated alloy. Suffice it to say, however, as 6W-438 explained to the professor, the parts of metal did wear out faster in the water than anywhere else, either in space or atmosphere. This wear, or greater friction, though Professor Jameson says nothing concerning it, I presume was probably due to particles of the sea bottom stirred up by movement of the machine men into the jointed, moving parts.

NEIL R. JONES,
(Address not published by request.)

(We will let this letter speak for itself as it certainly calls for no comment from us. —EDITOR.)

STORIES AND ARTISTS DISCUSSED

Editor, AMAZING STORIES:

I enjoyed every story in the September issue of our magazine immensely. "The Swordsman of Sarvon" tops all the rest by a big margin, in my estimation. I hope it is the first of a series of novels about Venus by Charles Cloukey. "The Lady of Light," by Jack Williamson is a fine novelette, but he had better write a sequel to it. Yes, the last of "The Lemurian Documents" is the best of them all. Let's hear more from J. Lewis Burtt. Let's have more sport stories of the future similar to "Suicide Durkee's Last Ride." "The Romance of Posi and Nega" is also a "different" tale.

I don't like Morey's cover on the September AMAZING STORIES, but his drawing for "The Lady of Light" is well done (except that Sharothon looks too much like Greta Garbo.)

I hope that you will start another Skylark serial soon. Why not put "The Skylark of Space" in book form yourself? It would surely be popular enough to pay you well. Please include the original illustrations by Paul, if you do.

I would like to read more stories by Arthur L. Zagat, Nat Schachner, Ed. Earl Repp, Aladra Septama, Stanton A. Coblentz, Earl L. Bell, A. Hyatt Verrill, Otis Adelbert Kline, L. Taylor Hanson, H. P. Lovecraft, Clare W. Harris, Philip Francis Nowlan, B. and Geo. C. Wallis, Marius, and John W. Campbell, Jr., in AMAZING STORIES.

Continue the full-page pictures, use thinner paper and bring back Paul, Wesso and prosperity.

JACK DARROW,
4224 W. Sawyer Ave.,
Chicago, Ill.

(We will think very seriously over what you have suggested and we hope that your letter will find response among our authors. Wesso is still with us. If we published the Skylark stories in book form they would certainly have the original illustrations reproduced. —EDITOR.)

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Editor, AMAZING STORIES:

I have noticed that a number of your new readers desire to obtain old copies of AMAZING STORIES, which, very often, are no longer available from the publishers.

I have a number of old copies, and I am willing to dispose of the lot at a reasonable price. I would appreciate your printing this letter in the reader's column where those interested might see it.

HARRY R. PANCOAST,
306 West 28th St.,
Wilmington, Delaware.

(We have received letters from time to time from correspondents who want back numbers. We would suggest that you look over our "Discussions" columns and write to some of these who may have missed seeing this particular letter.—EDITOR.)

THE SPEED OF LIGHT ACCORDING TO THE RELATIVITY THEORY

Editor, AMAZING STORIES:

Dr. Menzel's letter in the July, 1932, issue prompted me to write this letter. I so thoroughly disagree with anyone or everyone, who contends that the speed of light is the ultimate speed at which a material body may travel, that I should like one of them to dispute my contention and in doing so to dispute absolute scientific data.

My contention is: A body (material) may travel at speeds greater than that of light.

My proof lies chiefly in the fact that the waves of which light consists have no definite speed. If a body is travelling say at 2 miles per second, light from this body would travel at 186,002 miles per second while the light in back of it would travel at 185,998 miles per second. That in front would be bluer than ordinary while that in the rear would be redder than ordinary. This is an effect first noticed by Doppler on sound, and has since been used on light.

"Lockyer's use of the Doppler principle to explain the distortion of bright chromosphere lines was the first introduction of it into solar investigation, where it has played a pre-eminent rôle.

"It has been applied to determining the rotation of the sun by photographing in juxtaposition the spectra of the east and west edges of the sun. A careful examination of the Fraunhofer lines will show that the Fraunhofer lines from the east and west edges are mutually displaced. The displacement at the east limb to the shorter wave length indicates that the eastern equatorial edge of the sun is approaching the observer with a velocity of 2 Km/sec. and that therefore the sun rotates on its axis once in about 25 days."

(By St. John in his *"Knowledge of the Sun"* in the "Annual Report of the Smithsonian Institute for 1930," page 181.)

This goes to prove that the speed of a body which emits light must be added to the speed of the wave. Now if a body were travelling at the speed of 186,000 miles per second a beam of light in the direction of motion would of necessity travel at twice 186,000 or 372,000 miles per second. It would of course cease to be light to a stationary observer, but a ray having ½ the wave length of visible light. It would still be a beam of light to an observer on the body travelling at 186,000 miles per sec. So a body that could then say travel half the speed of light, leaving the body already travelling at the speed of light, would travel 1½ times as fast as light.

If I'm not right please some one correct me, but at least give a more reasonable proof for I will believe in the one that's most reasonable.

Noel Waite,
St. Joseph, La.

(Dr. Menzel is a very high authority on astronomical and physical subjects and is a confirmed believer in relativity. We were very delighted to obtain from him the note on the subject of light-velocity. It is quite interesting to get so clear an abstract of so intricate a subject. We have to acknowledge that our authors are not a bit troubled by limitations on the velocity of bodies and seem not to be troubled by the idea that the speed of light is the fastest that a body can go. We do not see how the Doppler principle, as applied to light, indicates that the velocity may vary. The lengthening or shortening of light waves has nothing to do with the velocity of transmisiion. If you accept the theory that the speed of transmission of light is not affected by the motion of the emitting body in its path through the ether, although the waves are displaced in the spectrum, you will see that this imposes a definite limitation on the speed of or rate of progress of the waves. The waves are shortened or lengthened in the direction of their progress but their speed is not changed. This is substantially the general theory.—EDITOR.)

ANOTHER WRITER DISAGREES WITH THE RELATIVITY THEORY OF THE VELOCITY OF LIGHT AND ITS EFFECT ON BODIES WHICH WOULD REACH THIS VELOCITY

Editor, AMAZING STORIES:

For four years I've read AMAZING STORIES magazines, and for four years I've waited patiently for an authority on the subject of the velocity of light and the apparent effect on bodies that reach this velocity. At last you have printed a letter from such a man as I would consider an authority on this particular phase, and I wish to say, in due respect to Dr. Menzel, that I do not agree with him.

Why, may I ask, do all who write you concerning this matter, attribute awe inspiring, terrible power to the velocity of light to change an object into the fourth or fifth dimensions or to convert it into a two dimensional object, or worse still to say that when an object reaches this speed, it is stopped from further acceleration as though it had struck the proverbial brick wall.

I appeal to you and all other intelligent, logical thinkers and particularly to Dr. Menzel to tell me why no speed greater than that of light is attainable when light is only matter in a strict sense of the word. It would be no harder theoretically to attain speeds greater than that of light, than it would be to pass a tractor, moving at a slow, governed speed, in an automobile. Considering the fact that there is no way to prove any theory set up by man at the present time, the only possible way to get at the subject is through theory and pure logic. And I sincerely doubt if anyone can sit for an hour or so and think this out intelligently and without prejudice and not rise seeing the question simply and clearly, as I think I do at the time.

And, by the way, will you kindly explain to me why days and days are required by "space ships" for acceleration and deceleration, and why a "space ship" could not, without undue effect on occupants, attain instantly from a standstill any speed and *vice versa* (sufficient power understood), in the absence of inertia and other known impediments?

Fletcher B. Pope,
303 N. Ewing,
Dallas, Texas.

(What we have said about the letter immediately preceding this one, applies pretty well to what you say. You can hardly consider light to be matter. It is supposed to be vibrations of the ether and the trouble is that we do not know what ether is and have no theoretical status that we can assign to it. Dr. Menzel is a very distinguished exponent of the doctrine of relativity. We are perfectly free to believe that the Einstein theories, in other words relativity, will be greatly modified from year to year and we believe that confirmed relativitists anticipate such modifications. Relativity has received a proof of its doctrines in accounting for the variations in the direction of the light waves coming from Mercury, which planet has long been a puzzle to astronomers on account of slight irregularities, as we may term them, in its motion; these irregularities relativity accounts for. Acceleration by the laws of inertia imposes a stress on bodies subjected to it. Mere velocity has no effect on a body subjected to it, but increasing or decreasing velocity produces a pressure, positive or negative as the case may be, and might easily amount to so much as to have disastrous effects. You would weigh more in an elevator while it was attaining speed than you would after it ran at a constant rate. You can feel the effects of very moderate acceleration and deceleration in any vehicle when it starts from rest and quickly goes at a high speed.—EDITOR.)

A VERY SEVERE CRITICISM OF OUR AUTHORS

Editor, AMAZING STORIES:

Do I read your stories often? I certainly do not! In the first place I think that most of the authors on your staff (with the exception of a few like Dr. Keller) should get together and write a splendid book on "Why we

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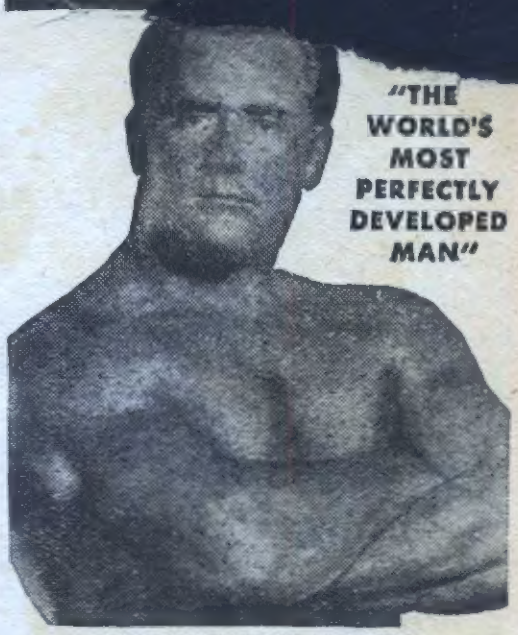

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A CORRECTION IN THE "QUARTERLY"

On page 327 of the last "Amazing Stories Quarterly" the clause in the footnote should read "about one-thirtieth of earth's atmospheric pressure at sea level" instead of "one-tenth, etc."

think we can write science fiction." Is it humanly possible for the authors to get it into their heads that in the future war will probably be abolished and that such an animal as a hero or heroine who conquers every possible obstacle in his or her path can never exist? Do these would-be writers ever conceive a scientist as a patient, hard, and enthusiastic worker, for whom it takes years of research before he can arrive at any definite idea? I don't think so. And they think of is some new terrifying monster who tries to stop the swaggering hero from running off with the heroine in face of unimaginable dangers. The "Skylark of Space" is an example of this sort of mere trash. If you must have science fiction of any sort, why not print some of the brilliant masterpieces written by H. G. Wells? Also for material you might use some problem for which no solution has been offered as yet, such as the real nature of bacteriophage. It would make a really interesting piece of work if done with some skill. (Let one of your authors try it.) Such severe criticism may not seem tactful but at least I hope I am going straight to the point.

So far the only useful things I've seen in your magazine are the Editorials, the Discussion columns and "In the Realm of Books."

Hoping for a considerably better magazine in the future.

Your fifteen year old pest (?)
Sol Japka,
59 West End Avenue,
Brooklyn, N. Y.

(The Editor of a magazine has two principal things to keep in mind. Whatever the general nature of the magazine must be, he must try to have its contents measure up to that standard. In other words, he must give good material from the standpoint of literature, science, history and encyclopedic range of topics in such a magazine as ours. Now the question arises who is to judge the quality of the matter. Here we come to the second element. As far as is consistent with what has just been said he must aim to please his readers, and must have great respect for their judgement and he must be guided more or less by the views of the majority. We get any number of letters criticizing the contents of AMAZING STORIES. If you will take the trouble to look back through the "Discussions" you would see that the "Skylark of Space" which we considered a very good story before we printed it, has received the greatest praise from any number of readers and certainly no one has ever given it so severe a characterization as yours. We think that if you were in our position, you would feel fortified in your choice of stories in cases like the "Skylark of Space", where only one person objected to it and any number of others praised it. We hope war will be abolished—but have our doubts.—EDITOR.)

HIGH APPRECIATION OF DR. KELLER'S WORK

Editor, AMAZING STORIES:

In reply to my last letter, published in this months' issue, you remarked that in my list of writers keeping up to the old AMAZING STORIES standard, I had left out many who were worthy enough of mention. In reply, with all seriousness I shall not increase that list, but decrease it to ONE, my oldest favorite, that genius and great writer in god-like form, the honorable Doctor H. Keller.

You may be surprised at my rather lightning change of opinion, but after you hear that I have read his latest masterpiece, "The Metal Doom," over ten times without exaggeration, I believe that you will be convinced. In my opinion there are not enough praising words in the English language that would fully appreciate his marvelous work. I am not going to wear out type by writing page upon page in his praise, but simply give him one title by which I think he is known to all, "Keller the Great."

John O. Michel,
1095 New York Ave.,
Brooklyn, N. Y.

(We would like to be present when Dr. Keller reads your letter. Dr. Keller has written a great quantity of stories, many of which have never been offered to the public, but are kept by him in bound volumes on a library shelf. We find in him a peculiar aptitude for maintaining interest to the last few sentences, something like the O. Henry quality. We remember one story where the word "Silly" completed the tale.—EDITOR.)

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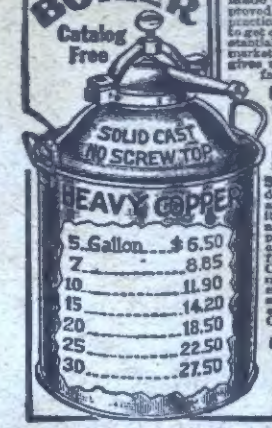

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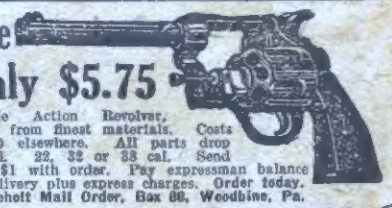

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